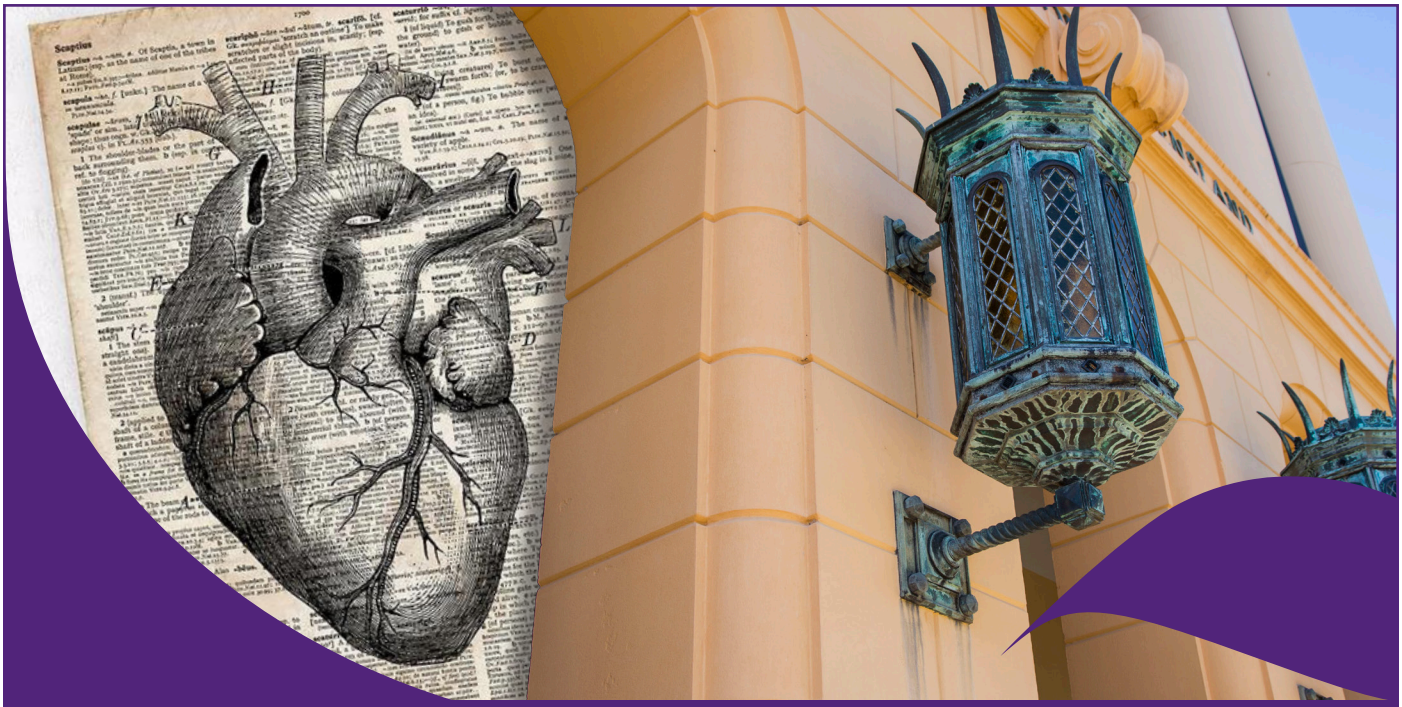

Marks-Hirschfeld Museum of Medical History

July 2021

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Curator's Introduction

Dear Readers,

Welcome to edition 79 of the Marks-Hirschfeld Museum newsletter. In this edition we have been able to showcase some of the Museum's very favourite objects—those made for therapeutic bloodletting. Robert has written a masterful and concise history of the practice which I am sure you will enjoy. The small gold pessary is another of my favourite objects we've featured in this edition. It is beautifully made and as Robert mentions in his article, would have cost a small fortune to purchase at the turn of last century.

Hopefully by now you will have received an invitation to the launch of the Museum's most recent exhibition A cause for celebration: 70 years of the Marks-Hirschfeld collection on Tuesday 20 July. We are incredibly lucky to have engaged a quinella of Geoffs as speakers—Executive Deal of the Faculty Professor Geoff McColl and Associate Professor Geoff Ginn from UQ's School of Historical and Philosophical Inquiry. Both have a great enthusiasm for university collections and are passionate about the importance of knowing and keeping history. It will be a wonderful event.

Finally, I would like to thank everyone who contributed to our reader survey. The feedback was extremely valuable and will help shape future editions of the newsletter.
Until our next edition (80!) I hope you all keep happy and healthy.

Charla Strelan
Curator, Marks-Hirschfeld Museum of Medical History

BLOODLETTING AND MEDICAL PRACTICE: A brief history to introduce some items of interest in the MHMMH Collection

by Robert Craig

I have often wondered why bloodletting was so widespread as a treatment and why it persisted for so many years. Concepts of malign influences, spiritual or physical, entering the body have always been prominent to explain death and disease, however, anyone who has witnessed catastrophic blood loss cannot but be impressed by the sense of the life draining away during such an event. Throughout history many have had this experience, whether in battle, by accident, during childbirth or in medical practice.

A straightforward answer is that the therapeutic removal of blood is derived from ancient practices in prehistory. Written record of the procedure was mentioned in an Egyptian papyrus. Bloodletting was in use during the lifetime of Hippocrates, a widely respected Greek physician from Cos (c.460 - c.370 BCE). Hippocrates is regarded as the father of medicine and his ideals and ethics were documented in the Hippocratic Corpus, a compilation of the clinical practice of Greek physicians from the 5th century BCE. Bloodletting was not favoured by him, but he considered that menstruation purged women of bad humours and suggested bloodletting could be a substitute, whilst still adhering to his principles of prescribing generally supportive treatments. He is remembered for his prescriptions of dietary interventions and natural remedies to make his patients feel better and he emphasised the need for an ethically mindful profession, in contrast to common practice of professional dishonesty and the making of spurious or heroic claims for remedies for specific diseases.

Aelius Galenus (Anglicized as Galen; 129-210 CE) added a focus on diagnosis and specific treatment from his observations of disease and its symptoms. He refined and codified bloodletting using his knowledge of anatomy and physiology from dissecting monkeys and vivisection, particularly of pigs. He devised a complex system using specific veins to relieve identified diseases based on his belief in blood's influence on disease; firstly, that it pooled in the body and became stale and bad blood had to be removed, and secondly, he tried to balance the competing humours of blood, phlegm, black bile and yellow bile by dealing with what he thought was a common problem of too much blood. His other treatments consequently involved emetics and diuretics rather than Hippocrates's more restorative therapies. This schism is reflected in an enduring division in the broad outlook of health practitioners in contemporary practice, between those who tend towards treating illness (feeling unwell) and those treating disease (a diagnosable structural or functional disturbance) which is commonly promoted as a more scientific if less empathetic approach.

Galen was a Greek physician surgeon and philosopher from Pergamon. He left a huge body of work much of which has survived. He believed in experiment and public demonstration and he became physician to kings and the Roman Emperor, which accounts for his continued influence. He dominated medical education throughout the Roman world as it spread eastwards. This influence returned later to mediaeval Europe with increased effect during the Renaissance through the rediscovery in the West of the classical texts stored in Arabian and Persian repositories together with the developments introduced by the golden period of Arabic academia. The emphasis on rote learning at that time made sure of Galen's influence across the known world into mediaeval times. However, substantially free from Roman influence, bloodletting was also used in India and China. It survives in many traditional practices which are often loosely based on the humoral balance espoused by Galen, and whilst this may have travelled both ways along the land routes from Europe to Asia, this is unlikely to be the only explanation.

Methods of bloodletting vary depending on the geography and history studied. The opening of veins was complemented by leeches, artificial leeches and scarification with the addition of cupping.

The introduction of scientific method and dissection of humans cast doubt of the efficacy of bloodletting. The experiments of William

Copy of a woodcut using similar bowl as a bleeding bowl out of 'The Regimen of Health from the School of Solerno' 1551

Graduated pewter bleeding bowl

Harvey in 1628 showing the function of the heart in the circulation of blood disproved the classical theoretical basis for bloodletting. Pierre Charles Alexandre Louis, an early proponent of numerical analysis, showed that phlebotomy was useless in the treatment of pneumonia (1630s). However, 200 years later in 1828, a lecturer at the Royal College of Physicians in London was able to state that the procedure was of inestimable value. William Osler, a founder of modern medical method and education, was a supporter of bloodletting. This support was repeated in the final edition of his textbook, The Principles and Practice of Medicine, as late as 1923, four years after his death.

This brings us back to the original conundrum of why bloodletting has been a characteristic of human behaviour across many centuries and belief systems. The universality not only suggests an inherent link between our behaviour and our thought processes (connation and cognition in phenomenology) but also that there are societal and psychological factors involved which are expressed in our concepts and emotions around healing, religion, power, retribution and contamination, or more biologically, in the hard wiring of the brain of Homo sapiens.

In the secular world of modern medical practice, it is worth noting the use of phlebotomy persists in some circumstances; in treatment for haemosiderosis to remove excessive iron from the body and polycythaemia to mitigate the effect of red-cell over-production, and in the removal of damaging blood to be replaced by healthy blood in an exchange transfusion used for the treatment of severe haemolytic disease of the newborn. Restoration of blood by transfusion and the infusion of blood

19th Century tortoiseshell handled lancets used for Gum Cutting and Phlebotomy

Fleams for venesection possibly for veterinary use, probably 18th century

components are used to balance a physiological need. I can add a personal note. As a resident, I was asked to remove blood from a direly distressed patient in acute heart failure after treatment with digoxin, frusemide and nitroprusside had failed to reduce the volume load sufficiently to give relief. The patient recovered! However, these few examples are not enough to explain the history of bloodletting,

Set of glass cups for 'cupping'

19th century mechanical instrument for scarification

though the Hippocratic reference to the relief of premenstrual and menstrual symptoms following menstruation may have been more influential than the brief footnote it is given.

The removal of blood by a respected and wise healer was a powerful placebo when all else had failed and guilds and professions have maintained their power, exclusivity and exceptionalism with other similarly dramatic treatments. This could be a factor to explain William Osler's comment which parallels the equally famous surgeon John Hunter's support of the useless practice of gum cutting to prevent disease in infants.

Leech jar: mid-19th Century

Artificial leech: spring-loaded blade with syringe

For most people, blood would seem to be something to be avoided and seen as dangerous or frightening. There are many examples of the symbolic meaning and experience of bloodletting such as the exsanguination of convicted criminals by public beheading or removal of vital organs from defeated enemies and human sacrificial victims. These have been frequent events throughout history and to the present day demonstrate the power of the perpetrator. Islamic and Jewish rules for the killing of animals for food requires the removal of blood before the meat is fit to be eaten and the exclusions for menstruating or birthing women in many anthropological studies are frequently framed as efforts to avoid pollution by these essential and natural, but perhaps spiritually powerful, processes. From another perspective, the relief of psychological or

spiritual distress by cutting or self-flagellation seems to require pain and a flow of blood to be effective. With its roots stretching far back into prehistory, I conclude that it is fear and horror of blood as a harbinger of death whilst also representing the presence of life which affects us all. Human evolution of the development of consciousness of our own mortality underpins many of the practices alluded to and therefore of the oddly persistent attachment to the practice of phlebotomy which is on record as being used for 4,000 years.

This poem is an extract from a book, by Jaefferson about doctors: 'The Salerne School' (1862) reprinted in a History of bloodletting by phlebotomy: Professor Liakat Ali Parapia published 8 September 2008 Blackwell Publishing Ltd, in the British Journal of Haematology, 143, 490–495; 2008.

Other facts, information and references were taken from Wikipedia entries on Bloodletting and Galen but comment and inference are mine alone - Robert Craig; January 2021.

''Of bleeding many profits grow and great,
The spirits and sences are renew'd thereby,
Thogh these mend slowly by the strenghth of meate,
But these with wine restor'd are by-and-by;
By bleeding to the marrow commethe heate,
It maketh cleane your braine, releeves your eie,
It mends your appetite, restorathe sleepe,
Correcting humors that do waking keep:
All inward parts and sences also clearing,
It mends the voice, touch, smell, and taste, and hearing.''

Gold spring pessary ('wishbone')

by Robert Craig

The display cabinets viewable from the corridor and function room on Level Four of the Mayne Medical Building are now able to be used after some modifications were made to fully meet the requirements for the collection. The current exhibition curated by Charla Strelan has been based on the original collection displayed at the 1950 meeting of the Australasian Chapter of the BMA. This was a significant milestone in the development of the Medical School in Queensland being the foundation of the Marks-Hirschfeld Museum of Medical History collection. I thought it worth drawing attention to a very small exhibit in the form of a gold wishbone pessary which could easily be overlooked when viewing the exhibits.

When this unusual looking contraption was rediscovered in the collection and required registration it took a while to discover its origins

Gold wishbone spring contraceptive pessary

and use. This was mainly because the volunteers were not aware that insertable devices for contraception had been available since the late 19th century. The use of acacia gum pessaries is documented in the Kahun Papyrus (1850 BCE), undocumented use of gold wire inserts has been reported from this era and credible reports of women's control of their fertility exist across history, usually by abortifacients and various topical and ingested concoctions, often being very toxic to the recipient.

These intra-cervical devices were originally made in Germany from 1880 but later were manufactured in various European countries. They were made from gold, which varied from 9-14 carats, from two wires of about 75mm long, held together at one end by a 20mm gold spring and fixed to a flat button-like stud. The stud prevented the device from working further up the cervical canal into which the spring was inserted with the free arms contained in a gelatine coating. Theoretically, after insertion the gelatine dissolved, and the free wires sprang apart to prevent implantation of a fertilised ovum. The gold was intended to prevent infection, however as a foreign body it caused irritation in the cervical canal, the conduit from the vagina to the uterine cavity, and increased the risk of endometritis and salpingitis causing infertility if the device was not rejected, negating the purpose for which it had been inserted.

In a 1930s Allen and Handbury catalogue the item is listed for £2.12s.6d, a substantial price at the time. Manufacture ceased in 1936 following articles regarding the complications of insertion and the dubious claims made for its reliability. It was not until the 1960s when the intra-uterine device was introduced and gained favour for those women with contraindications to the high dose oral contraceptives available at that time. These devices have only a nylon thread through the cervix for its withdrawal and though IUDs remain an option for contraception, they have been largely superseded by modern methods such as low dose hormonal tablets and implants.

Out of laboratory testing

by Robert Craig

Up to 50 years ago biochemical and haematological testing was not easily available for referral from practitioners outside hospital laboratories. Most office and home pathology testing are now done using various commercially available testing strips which include a large variety of urine and blood tests for biochemistry, pregnancy testing and recently a test for the presence of Corona Virus as well as the widely used test for faecal occult blood

Haemoglobinometer with detailed instructions on how to use it

for screening for bowel cancer. However, this technology was not available until about 1960 and the Museum has many objects from that time. Other laboratory testing was often more expensive or unobtainable to clinicians working outside major hospitals, but haemoglobin estimation was widely practised using a variety of proprietary haemoglobinometers based on colourimetry matching the sample against a standardised scale.

The Museum has many urinometers (hydrometers made to reflect the range of specific gravity of urine) which are useful in determining the capacity to concentrate urine for patients with renal failure. This commonly occurred as a result of complications (glomerular-nephritis) from streptococcal infections (untreatable in the pre-penicillin era and called Bright's disease). Microscopic examination of the urine was a common side room practice to demonstrate cells (leucocytes) or crystals such as uric acid as well as the presence of bacteria with Gramm's stain. Glucose was detectable using Fehling's or Benedict's solution depending on the colour change from the reduction of blue copper salts to red copper oxide which could be confirmed by tasting to distinguish it from other sugars and aldehydes! Urine albumin measurement for diagnosing nephrotic syndrome and pre-eclampsia of pregnancy was done by adding reagent (picric and citric acid to a measured amount of urine enabled estimation of albumen using an Esbach's Albuminometer

Esbach's Albuminometre

Further equipment commonly found increasingly through the first half of the 20th century, in addition to sphygmomanometers and microscopes, were portable ECG machines,

'Vitalograph' Spirometer

spirometers for pulmonary function testing and later peak flow meters.

The Vitalograph Spirometer could measure Vital Lung Capacity and forced expiratory flow in one second. It didn't take long before small plastic instruments were produced for individual use, these often being given as promotional gifts to General Practitioners by bronchodilator manufacturers to enable serial and home measurements of the therapeutic effect of their pharmaceutical preparations and to advertise their products.

Peak Inspiratory Flow Meter

Peak Expiratory Flow Meter

These items have been modernised beyond recognition and have become increasingly redundant with patient self-monitoring and internet connections to enable distant interpretation of results which has been particularly useful for the interpretation of electrocardiographs from out-of-office portable machines. The widespread availability of pathology collection centres has enabled rapid, automated, accredited testing and efficient transmission of results has reduced the need for out of laboratory testing but the ease with which it can be obtained has probably added to the huge increase in pathology testing along with the exponential increase in health costs. The sophistication of sphygmomanometers has matched the other testing equipment but simple to use, inexpensive devices have been made available for home use.

Many earlier practitioners were multiskilled and less dependent on specialist services. Martindale's Bacteriological Testing Case from about 1900 (pictured) illustrates this point being a comprehensive bacteriological kit including multiple stains slides and equipment to culture swabs taken from patients. During World War I some medical officers in forward emergency stations were instructed to be prepared to culture stool specimens to differentiate typhoid fever from paratyphoid because these infections were causing so much debility. Typhoid fever was well known, and troops could be immunised though the duration of the illness and its complications were more serious than the more recently recognise outbreaks of diarrhoea caused by S. paratyphi. The case pictured is on display at UQ's IPLC (Integrated Pathology Learning Centre). It includes slides and laboratory equipment in the one box. The contents would be sufficient to carry out the testing required of those medical officers but accuracy of results would be open to doubt. The advertisements on the lid refer to Martindale's related products; a urine testing kit, a burette stand and a uric acid testing kit.

(All photographs are of objects from the Marks-Hirschfeld Museum of Medical History collection, with the exception of the image of handheld lancets, courtesy of The Lancet journal).

News and Ideas

Support us

With a new financial year almost upon us, we thought it timely to remind readers that all donations over $2 are tax deductible and go directly to the Museum. Our generous philanthropic supporters are vital to our work and play an important role in preserving Queensland's medical history.

Your gift to the Marks-Hirschfeld Museum could support:

- Conservation of our rare book collection
- Protective storage for our laboratory and pharmacological glassware
- Archival sleeves for our collection of Trephine magazines
- Digitisation of our photographic and vinyl record collections
- Refurbishment of historic exhibition cases
- Publication of an exhibition catalogue
- Purchase of an audio-visual display to play significant films from the collection

And that's just for starters!

For details on how to give, visit our website; hmedicine.uq.edu.au/marks-hirschfeld-museum

Get involved with the Museum

Donate to the Museum

The Museum is managed by a team of dedicated volunteers. Our generous philanthropic supporters are vital to the works of the Museum, and we welcome donations in support of our collection preservation and archival programs, exhibitions and educational activities.

Through your gift you will be playing a vital role in preserving medical history and building a significant collection to deliver inspiring and engaging learning opportunities to our students, researchers and the community.

You can support the Museum by donating online, contacting us on 07 3365 5081 or emailing med.advancement@uq.edu.au

Become a volunteer

If you'd like to join the volunteer team, please contact us at medmuseum@uq.edu.au

Join the conversation

Contribute to the Museum newsletter

The Marks-Hirschfeld Museum of Medical History newsletter is issued four times per year. We are always on the lookout for interesting materials that explore the rich tapestry of medical history. If you would like to contribute a story or have a topic that you would like to see included in future editions, please send an email to medmuseum@uq.edu.au.

Our next newsletter will be distributed in October 2021. If you are interested in submitting an article, please send your story and photographs by no later than Monday 20 September.

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CRICOS Provider Number: 00025B