

The
Scottish Society
Of the
History of Medicine

(Founded April, 1948)

**REPORT OF
PROCEEDINGS**

SESSION 2006-2007 and 2007-2008

The Scottish Society of the History of Medicine

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The Scottish Society of the History of Medicine

REPORT OF PROCEEDINGS

SESSION 2006-2007

THE FIFTY EIGHTH ANNUAL GENERAL MEETING

The Fifty Eighth Annual General Meeting was held at the Edinburgh Academy on 28th October 2006. The President, Dr Bryan Ashworth was in the chair. The Secretary, Dr Tony Butler, presented his report and the Treasurer, Dr Morrice McCrae, presented the Treasurer's report which was accepted. Dr Nigel Malcolm-Smith was appointed as the new Secretary and Dr Tony Butler, the retiring Secretary, was warmly thanked for his efforts.

THE ONE HUNDRED AND SEVENTY SIXTH ORDINARY MEETING

The One Hundred and Seventy Sixth Ordinary Meeting of the Society took place at the Edinburgh Academy on 28 October 2006 and followed the Fifty Eighth Annual General Meeting. Two speakers gave papers, the first, by Mr Roy Miller, was on the Fatal Illness of Frederick the Noble and the second, by Dr Niall Finlayson, was entitled Harvey's World.

THE FATAL ILLNESS OF FREDERICK THE NOBLE

I take the title of this talk from a book which its author should not have written, and I shall refer to that later, although it has provided most of the substance of this talk. Frederick was born in 1831 in Potsdam and became a Crown Prince on the accession of his father as Kaiser Wilhelm I of Prussia in 1861. He was kind and gentle as well as intelligent, attending Bonn University on merit, the first Prussian Prince so to do. He fought in the war of 1866 against Austria, and in the Franco-Prussian war, begun in 1870, he was at the siege of Paris. When he was 24 he was invited to Balmoral, and was introduced to Queen Victoria's eldest daughter, Vicky. Although she was only 14 at the time they became engaged. Prince Albert no doubt had something to do with this meeting. The couple married three years later, in 1858, when she was 17. She may have been 10 years younger than her husband but Victoria became the driving force in the union. In fact she was a little "bossy-boots" and came to be disliked by her new subjects. She corresponded regularly with her mother, if not actually daily.

The emergence of a united Germany was mainly due to the political astuteness of Wilhelm's First Minister, and Chancellor, Otto Eduard Leopold von Bismarck, who masterminded the war against Austria which ended in their defeat at Koniggratz and produced the Confederation of German States. Then, after the French were defeated and peace was signed in the Palace of Versailles this allowed the assimilation of the Southern Catholic States, despite a long and strenuous quarrel with the Catholic Church. In fact it was in that Palace on 18th January 1871 that Wilhelm was proclaimed Emperor of Germany.

In late autumn 1886, when the Crown Prince and Vicky were on holiday in Northern Italy, Frederick apparently developed a cold which made him hoarse and failed to resolve, despite the ministrations of his personal physician, Dr. Wegner, who then sought the advice of no less than five other doctors, one of whom, Professor Gerhart, had an interest in ear nose and throat diseases and managed to visualise the Prince's larynx by mirror laryngoscopy. Gerhart saw a small growth on the left vocal cord and tried to destroy it by applying electro-cautery on several occasions.

Despite all this Frederick's hoarseness became more marked. More than five months after the onset of her husband's symptoms Vicky sent her mother a telegram asking if she knew of anyone who could help. Enter now the author of that book - Sir Morell Mackenzie. Born in

Leytonstone, North London, he was the eldest son of a surgeon whose family came from an estate near Strathpeffer in Ross-shire. An insurance clerk before studying medicine at the London Hospital, he became a member of the Royal College of Surgeons in 1858, and gained an M.D. five years later, spending one year on the Continent, studying in Paris, and in Vienna, where he visited the surgeon Czermak, who was the greatest exponent of mirror laryngoscopy at the time. This form of examination had only recently been discovered by Manuel Garcia, a singing teacher who had seen his own vocal cords reflected on to a plain mirror in front of him from a warmed dental mirror, which he had introduced to the back of his throat. Considerable dexterity was, and still is, involved. Hidden round a corner behind the tongue the cords could only be reached using forceps with a right angled bend built into them. Using a mirror image one had to learn that, if the view seemed to indicate that the forceps should move forward the reverse was true if the object seen was to be grasped, and there is not much room for manoeuvre.

Mackenzie not only had the skill but he was ambidextrous. He became a recognised expert in operations within the larynx and adjacent parts. Largely through his exertions the Hospital for Diseases of the Throat was established in Golden Square, London in 1863. He built up a huge private practice in Harley Street. He was at the peak of his profession when he received a Royal Summons on the evening of 18th May 1887.

At the Queen's behest he set off for Germany the next day to see the Crown Prince, apparently without having been fully appraised of the severity of the problem. Only when he met his royal patient on the 20th did he learn that, on the basis of the possibility that the growth which had been seen might be cancerous, a major operation was proposed for the following day, and Professor Bergman, an eminent surgeon, was present to perform it.

The vocal cords lie protected in the neck behind the laryngeal cartilages which meet at the front like the prow of a ship to form what in the male is known as the "Adam's Apple." The plan was either to split open the larynx from the front and remove the tumour if possible, in an operation known as laryngofissure, or even remove the entire larynx which would leave the Prince voiceless and breathing through an opening in the front of the neck - provided he survived. At that date he had a less than one in three chance of doing so.

Mackenzie examined the larynx and saw in the mirror a small pink smooth growth on the left vocal cord near the back which, clinically, did not appear malignant. He said a biopsy was necessary before embarking on such radical surgery. He purchased a pair of forceps locally, and managed to obtain a specimen at the second attempt. Perhaps the not too friendly audience, rather than a strange instrument, were to blame for having to take two tries.

Professor Virchow, the most famous pathologist of the day, examined the biopsy and declared that he could detect no evidence of malignancy. The operation was cancelled. On 7th June, using his own instruments, Mackenzie removed more of the growth. Virchow reported that he saw nothing that would be likely to excite suspicion of wider and graver disease.

Frederick travelled to London for Queen Victoria's Jubilee and rode in the procession on 21st June. In the ensuing week Mackenzie took another biopsy. Virchow once more reported seeing no evidence of malignancy. Two doses of electrocautery were applied to the growth and when the Prince returned to Germany on 31st August his vocal cords were regarded as appearing normal. However, Mr. Hovell, Mackenzie's assistant, accompanied him and examined the cords almost daily. Slowly a swelling arose below the left vocal cord, and when some ulceration became evident and hoarseness returned Mackenzie hastened to San Remo to examine the Royal larynx on 6th November. In response to the Prince's query, Mackenzie replied that this time he felt the growth looked malignant. Receiving the news Frederick took his hand and said, "I thank you Sir Morell for being so frank with me."

Dr. Krause from Berlin and Professor von Schrotter, a renowned laryngologist from Vienna, were consulted. Schrotter recommended total laryngectomy. He, therefore, was the one delegated to tell the Prince. After listening to all the possible outcomes and the options available Frederick declined to have his larynx excised but agreed to a tracheostomy should it become necessary. (This may well be the first recorded report of failure to obtain informed consent.)

Frederick's condition slowly deteriorated into 1888 until in February breathing became noisy and very laboured, so that, on the 9th, a tracheostomy was performed by Dr. Barmann with some difficulty under chloroform anaesthesia. The initial tube inserted into the trachea to enable free

passage of air caused the patient to cough, often with blood streaking. Sleep was disturbed. Mackenzie inserted a different type of tube. Ill-feeling developed between the factions involved regarding further management. Eventually Prof Bergmann produced a letter asking that all speculation regarding differing opinions should cease, and declaring that Mackenzie was to be the doctor in charge of the Prince's continuing care. It was signed by von Bergmann, Bramann, Krause, Schrader, Mackenzie and Hovell on 6th March. This was the same day that the definitive diagnosis of cancer was made by Professor Waldeyer from microscopy of yet another specimen. (He is famous in E.N.T. circles for giving his name to the lymphatic tissue around the pharynx, recognised as tonsils and adenoids but also known as Waldeyer's Ring.)

While the Royal Couple were at their favoured San Remo news reached them on 8th March that Kaiser Wilhelm was critically ill and Chancellor Bismarck asked them to hasten to Berlin. The 91 year old Emperor died on the 9th. Greatly upset, Frederick, the new Emperor, left San Remo at 9 a.m. on the 10th.

He slept well on the train, reaching Munich at 8.30 a.m. on the 11th before going on to Leipzig where Bismarck met him, and asked Mackenzie, whom Frederick had appointed to continue as his chief physician, to lay down rules regarding the number and duration of any interviews expected of the Emperor. The entourage arrived at Charlottenburg in a snowstorm at 11p.m. to be greeted by crowds enthusiastically lining the streets, and by his son Wilhelm, the new Crown Prince.

On 15th March, despite a large area of the upper and deepest part of the tracheostomy site separating and sloughing off, Frederick received all the Kings and other Royals who had come to attend his father's funeral. However, he was forbidden to attend the actual ceremony on the 16th by McKenzie.

Frederick pursued the life of Emperor as best he could, with a routine comprising audiences from 10 till noon, resting an hour or two after lunch, then receiving informal visitors in the afternoon. He signed State Papers, wrote his diary, dined at eight and retired about 9.30p.m.

On 25th March the Emperor wrote the following to Mackenzie, "I wish to give you an Order in grateful recognition of your valuable services to me and in remembrance of my accession to the throne. I shall therefore ask the Queen whether she will make an exception and allow you to accept and wear the Decoration."

Frederick was unaware that Mackenzie was receiving what is now commonly referred to as "hate mail." On 14th March the first to arrive threatened him with death unless he leave by the 17th, claiming that only German doctors should treat a German Emperor. The Press then began a campaign against him. They said he was really a Jew called Moritz Marcovicz whose grandfather had left Posen in Poland to settle in England.

Mackenzie continued to care for Frederick whose condition was slowly but surely deteriorating. True to his word, on the evening of 10th April, the Emperor presented Mackenzie with the Cross and Star of the Hohenzollern Order along with a hand written letter thanking him for his work, and the confidence he instilled. On 12th April an unfortunate event occurred, which no doubt contributed to Frederick's eventual demise. His breathing had become more laboured and Hovell tried various different tracheostomy tubes, trying to alter their position by padding them out with swabs to no avail. Professor Bergmann arrived and then tried to insert a tube. He failed to do so forcefully in three attempts. When he gave up Dr. Bramann seemed to insert one easily. The Emperor coughed and bled from the area for about two hours after this. He indicated that he would not like Professor Bergmann to do any other operations on him. It would seem that Bergmann had pushed the tube into the tissues alongside the trachea and created what is known as a false passage. Pus began to discharge from the lower part of the area four days later.

For some weeks there was no great change obvious, so that Frederick was able to receive Queen Victoria on several occasions during her visit at the beginning of May. In mid May he took a short ride in a chaise, then a longer drive outside the Palace grounds. On 21st he went to Berlin, and on 29th, despite feeling exhausted and very ill, he reviewed from a carriage three regiments of Guards marching past under the command of Crown Prince Wilhelm.

He moved to Potsdam on 1st June. He still managed to sign State Papers and on 12th June he even received King Oscar of Sweden, the same day that a small amount of the milk he had swallowed leaked into his trachea through a tiny breach in its posterior wall which is contiguous with the oesophagus, and a feeding tube had to be passed into his gullet to deal with the problem. The

development of this, a tracheo-oesophageal fistula, was an ominous sign.

At 4a.m. on the 13th Mackenzie wakened Vicky to say the end was near. The Emperor was sedated with a mild draught and fed milk and a little whisky through his tube. At 11a.m. on 15th June Mackenzie informed the Empress that her husband had died.

Frederick III was Germany's Kaiser for only 99 days, during which he carried out his duties with great dignity and fortitude. He seemed never to complain or to blame. He truly deserves the title of Frederick the Noble.

What of Morell Mackenzie? A pamphlet published in Germany blamed him entirely for the events which led to the Emperor's death. It was said that he was sent to ensure that Queen Victoria's daughter became Empress. He published his book as a result of highly influential representations. Unfortunately he did not confine himself simply to a purely factual medical report, but tried to justify his treatment and vindicate himself. He went on to belittle the German doctors, querying their expertise and even implying a lack of professionalism. Despite the fact that he had devoted 13 months almost solely in the service of Frederick as Crown Prince and Emperor, his reputation never quite recovered. He died in his house in Harley Street on 3rd February 1892.

More importantly Frederick's son Wilhelm became Emperor of Germany with all that that entailed for the future of Europe.

I would like to add a little postscript to this sad story. We must recognise the following.

As happens so often with famous people, Crown Prince Frederick was over-treated by his medical attendants. Treatment of laryngeal disease was in its infancy, as was the safe administration of general anaesthesia, which was administered in an ad hoc fashion through a mask.

The growth may well have been simple in the beginning but repeated use of Electro-cautery, which really meant burning the area with a red hot wire to destroy it, may have made it malignant. It was not recognised until years later that such frequent irritation can induce cancerous change. I must add, however, that these manipulations were performed under local anaesthesia using a cocaine solution spray.

There were no x-rays to monitor the situation. There were no antibiotics. The mutual antagonism of his medical attendants was unnecessarily stressful.

One of the greatest indignities suffered by the Emperor late in his illness must have been the all-pervading odour emanating from his fungating growth and the accompanying infection which no amount of frequent cleansing or the use of highly scented dressings could eradicate.

Finally, had he suffered from his disease today he would have stood an almost 100% chance of complete cure, which makes me have all the greater admiration for the tolerant fortitude of a truly noble patient.

HARVEY'S WORLD

William Harvey's long life started in 1578 and spanned 79 years until his death in 1657. His research on the circulation, built on the new anatomical knowledge that had been provided by Vesalius and others, including his own teacher Fabricius, added an understanding of function to contemporary knowledge of structure and opened a whole new aspect to biometrical research. Beyond that, his work was a triumph of Humanism over Scholasticism – of observation and reason over appeals to authority - and was one of the many fruits of the Renaissance. It has rightly ensured his place as one of the giants of world biomedical investigation.

I am no expert on Harvey and it is unlikely that I can shed new light on him. However, Harvey, like us, did not live in a vacuum but in a society and a world that would have brought many different circumstances, movements, ideas and people to bear on him. We believe that we are living in a turbulent world that we often feel powerless to influence, but Harvey too, was living in such a world. It should be interesting, and possibly instructive, to look at some of the circumstances, ideas and people that would have impinged on Harvey's world in the course of his life.

The Elizabethan World

Harvey was born in 1578 into the Elizabethan world of the last Tudor monarch. Elizabeth's

strong intellect, good judgement and religious tolerance allowed her to react constructively to the potentially destabilising ideas of the Renaissance and the Reformation that followed from it, and her steadfast courage and leadership in facing the country's crises and enemies, especially the Spanish Armada in 1588, united her people behind her. The society she created was unequivocally hierarchical, but rewarding ability and energy, from wherever it came, allowed a social mobility that encouraged self improvement. When she ascended the throne in 1558, England was a defeated and demoralised country and when she died in 1603, it was on its way to becoming a major power.

The Family World- Education

Harvey's world was of course, initially that of his family and in this regard, he was fortunate, as the family was large, able and supportive. The Harveys had probably been prosperous farmers in Kent for some generations, but Thomas Snr, Harvey's father, also proved a shrewd businessman. He prospered in the new Elizabethan society, and by the time the children had arrived, he and his wife Joan inhabited a "fair-built stone house". Initially he called himself a "yeoman", but as he prospered and grew in influence, becoming Mayor of Folkestone four times, he became a "gentleman" and acquired a coat of arms. Joan was a good wife and mother, for when she died in 1605 aged 50, the family placed a brass plaque in the parish church inscribed with these words

Joan, Wife of Thomas Harvey

A provident, diligent Huswyfe: a careful tender-hearted mother:

Deere to her Husband: Reverensd of her Children:

Beloved of her Neighbours: Elected of God:

Whose soule rest in Heaven: her body in this Grave:

To her a happy advantage: to hers an Unhappy Loss.

As diligent parents, Thomas Snr and Joan saw that William, their first born, received as good an education as they could provide. His main schooling was at King's School at Canterbury, which he probably attended from 1587, when he was 10, until he went to Gonville and Caius College, Cambridge, in 1593, aged 16. He would have seen the urgent activity in Folkestone in 1588, when the Cinque Ports called on Folkestone to provide ships and material to oppose the Armada. England was not a major sea power at that time and faced the 130 ships of the Armada with only 34 royal ships. A further 190 private ships were fitted out to supplement these and Folkestone contributed £43,000.

Harvey entered Gonville and Caius College in 1593, qualified BA in 1597 and left in 1599. Gonville and Caius College had the right to the bodies of two executed criminals annually for dissection and was considered the best college for medical sciences. Learning was, unfortunately, in a state of decay in Cambridge in the early seventeenth century, but Harvey seems to have learned satisfactorily, for he later acquired an MD in Padua in only 2 years. Later in life, when compiling notes on anatomy, he recalled many observations made in Padua and in London, but virtually nothing from Cambridge.

Thomas Snr and Joan had a further 8 children, none of whom were neglected. Thomas Jnr, Daniel, Eliab and the twins Michael and Matthew all grew up to be successful and wealthy businessmen in their own right, trading in the Levant and Far East through membership of the Levant and East India Company. Daniel's son, Sir Daniel Harvey, continued the family success in the next generation and became Ambassador to Constantinople in 1688.

Thomas Snr died in 1623 and in his will he gave his children advice which they followed and which gives an indication of the nature of the family. He said he was "...desiring then to live in his [God's] fear and unite with one another fast knit together, as they may be evermore an helpe one to another". Later in his own life, as I will recount, William Harvey too had reason to be grateful for his brothers' support.

The Renaissance World

Harvey set off for Padua in 1600, for what was to be a truly seminal time in his life, and, vital to his development, were ideas arising from the world of the Renaissance.

Learning stagnated in Europe, following the fall of the Roman Empire in the West in the fifth century, and scholarship depended solely on reference to past authority. The Renaissance produced new scholars, known as Humanists, who demanded that argument depended on observation,

reason and reference to the most original or accurate texts. As Harvey later said, "I profess to learn and teach anatomy not from books but from dissections, not from the tenets of Philosophers, but from the fabric of Nature". This is the Renaissance speaking, but where did the Renaissance come from?

Islam

In fact, a huge contribution came from the powerful Islamic Empire, which had acquired large number of Greek, Latin and Hebrew texts. These were preserved, translated into Syriac and Arabic, mainly in Baghdad, assimilated into the increasing body of Islamic knowledge produced by Islamic scholars and re-circulated into Europe via Islamic Spain- Al Andalus- and Italy. Indeed, for centuries before the Renaissance, European scholars travelled throughout the Islamic Empire to draw on this enormous source of art, architecture, philosophy and science. Adelard of Bath was one of these, and in the twelfth century he translated many works from Arabic into Latin, including Euclid's Elements of Geometry, which became a standard European text for centuries. Adelard said "From the Arabs I have learned one thing- to lead by reason. I will detract nothing from God but very carefully listen to the limits of human knowledge. Only when this utterly breaks down should we refer things to God!" These were the voices that informed Harvey's education.

The Arabs were also far in advance of Europe in medicine. Al Rhazi (865-925), known in Europe as Rhazes, was the outstanding physician of the day in ninth century Baghdad. His Book of Medicine Dedicated to Mansur, (his patron and ruler), a short textbook of Medicine, was translated into Latin in Islamic Toledo, by Gerard of Cremona in the twelfth century and his monumental Comprehensive Book of Medicine was translated into Latin by Faraj al Salim for Charles of Anjou in the thirteenth century. Gerard of Cremona also translated the Surgical Treatise of al Zahrawi, or Albucasis, as he was known in Europe. These books were immensely influential in European medicine for centuries.

Erasmus

As regards the Renaissance in Europe itself, Desiderius Erasmus, (1466-1536), was the towering intellectual figure of the late fifteenth and early sixteenth centuries. His book, *The Praise of Folly*, in 1509, put forward pungently but brilliantly his views on society, where merchants were considered worse than lawyers and lawyers worse than philosophers. Of (scholastic) theologians he said, "Perhaps it would be wise to pass over the theologian in silence". He contrasted the ideal achievable from study of the Bible with the reality of the life of the Church with its corruption, graft, superstition and idolatry. His work undoubtedly led to a general lowering of regard for the Church and for the Pope, but he did not precipitate the Reformation- that fell to Martin Luther- but when the Reformation came, the Church blamed Erasmus for bringing it on and Luther blamed him for not backing it wholeheartedly!

Luther

Martin Luther, (1483-1546) was the man who precipitated the Reformation and the religious turbulence that followed, by applying Renaissance thought to his religious life. Luther was an Augustinian monk whose Humanist study of original Biblical sources led him to recognise that salvation was completely a gift of God's grace and not something to be bought from the Catholic Church in the form of indulgences. When Luther nailed his ninety five theses to the door of the Wittenberg church, challenging these ideas, the Reformation followed.

Gutenberg

None of this might have happened, however, had it not been for Johannes Gutenberg, (1398-1468). Born in Mainz, Gutenberg was a metal worker and inventor who revolutionised printing. He invented moveable type, for the first time in Europe, and rapid printing became a vital part of the spread of the Renaissance and the Reformation. Luther's Theses were translated into German and were available in Germany in two weeks and were all over Europe within a month.

Vesalius

A key figure in the medical world of the Renaissance was Andreas Vesalius, (1514-1564), a Flemish anatomist. Human anatomy prior to his time was surmised from animal dissection, and knowledge was based largely on the observations and authority of Galen. Dissection had been forbidden by Islam and Christianity, and it was not until 1482 that Pope Sixtus IV pronounced dissection permissible for executed criminals, provided that a Christian burial was accorded afterwards. Vesalius studied medicine in Louvain and Paris before arriving in Padua in 1537, where he became a Professor. His *De Humani Corporis Fabrica* was a monumental work of human anatomy and a watershed in the understanding of the human body. Such was his fame that he was appointed physician to the Holy Roman Emperor, Charles I, and his successor, Philip II, and much of his later life was spent in Madrid.

The World of Padua

Against this Renaissance background, Harvey arrived in Padua in 1600 and must have found it a totally different world from Cambridge. Cambridge, a Magisterial University ruled by its Masters and its senior Dons; Padua, a Student University, ruled by its students, who controlled courses and elected their own teachers. Cambridge, in a period of academic decline; Padua, Italy's foremost university and medical school, at the pinnacle of academic achievement, with famous teachers and lecturers such as Galileo, and benefitting from the civic, religious and academic freedom bestowed by its association with the Republic of Venice.

Harvey played an active part in university life in Padua, and that life was often turbulent. He even took to wearing a dagger and contributed to the knife culture of his day. Each nation had its own College and each national College contributed two student Consilarii to a university executive body along with the Rectors. Harvey was an English Consilarius during his stay in Padua, so he must have had the respect of his fellow students, and he must have distinguished himself as he was given a personal stemma or tablet when he left office.

Fabricius

Vesalius was the most famous professor of anatomy at Padua, but by the time Harvey reached Padua, anatomy teaching was in the hands of Girolamo Fabrizi d'Aquapendente, more easily known as Fabricius. Fabricius was an outstanding teacher and researcher with a forceful personality. He held the chair of Anatomy and Surgery, had a large clinical practice and, it is interesting to note, was frequently involved in medical lawsuits! He was in high demand as a teacher and he designed an anatomy theatre to allow five galleries of spectators to see dissections. This theatre, built in 1594, would have been attended by Harvey and can still be seen today in Padua.

We do not know if Harvey and Fabricius knew one another, but Fabricius was the teacher who most influenced Harvey. Harvey always referred to him with respect, though this was usually followed by a demolition of Fabricius's opinions.

Most interesting in relation to Fabricius and Harvey is the matter of venous valves. Fabricius published a small book in 1603, in which he described venous valves, in his view for the first time, which he had seen first in 1574. Accordingly Harvey would certainly have heard of them from Fabricius's teaching when he was in Padua. Fabricius called the valves "ostiolum" meaning "little door", and he certainly had no idea of their true function, for he believed that blood flowed distally in the veins. It was not until Harvey published *De Motu Cordis* in 1628, that he referred to the "valvula" or valves to describe these venous structures and clearly because Harvey now understood their true function.

Graduation

Padua had a profound influence on Harvey's development as a doctor and a scientist, but the time came for him to leave the world of Padua. Harvey graduated MD from Padua in April 1602, capped by Thomas Minadous of Rovigo, Professor of Medicine, who gave him some books of medicine and philosophy, put a gold ring on his finger, placed a cap, (an emblem of the Crown of Virtue) on his head and bestowed on him the kiss of Peace. Harvey's diploma was signed, among

others by Fabricius and granted by Sigismund de Capilisti, Count Palatine, nominated by the Venetian Senate, as the usual diploma, granted by the Pope, could not be given to a non-Catholic. Thus adorned and fortified, Harvey returned to England and the world of London. So far as we know, he never visited Padua again.

The World of London – College Entrance

On his return to London, Harvey took up residence near St Martin's Church, close to Ludgate. We know very little about his personal life except that he married Elizabeth Browne in the church of St Sepulchre in 1604 and that they had no children. Harvey's impressive MD degree from Padua cut no ice in the medical world of London. First he needed to become a Fellow of the Royal College of Physicians. Soon after he came to the throne, Henry VIII tried to stop quacks practising in London by putting the licensing of doctors into the hands of the Bishop of London and the Dean of St Pauls, in 1511. This did not work, and in 1518 Henry gave Cardinal Wolsey and six physicians, the senior of whom was Thomas Linacre, the right to establish a College of Physicians of London with licensing rights in the city. The new College was not, in fact, that successful in stopping unlicensed activity, as it did not have the resources to police London's total medical practice. What the College could do however was to make life difficult for more worthy applicants. Harvey had to appear for examination four times before becoming a licentiate in 1604 and a Fellow in 1607. After his first appearance, his examiners said "His replies to all questions were entirely satisfactory... Nevertheless he was put off until another time, with our tacit permission to practice". All the examinations were oral, all in Latin and none were recorded! I leave you to your own thoughts on the system.

St Bartholomew's and Family Support

Harvey also had to obtain a position that could support his efforts to establish a private practice. In 1609 his application to be appointed physician to St Bartholomew's Hospital was successful, due in large part to the help of his brother John. John had entered the service of King James I and VI and in 1609 was a "footman" to the king. This was not the menial post it sounds, and John later became successively a Yeoman of the Bedchamber, a Sergeant-in-Ordinary to the king and then Receiver of Crown Property in Lincolnshire. John persuaded King James to write a letter of recommendation for William to the Executive at St Bartholomew's Hospital and I wonder whether this was not viewed by them as a suggestion not to be refused. This episode is interesting in showing the importance of influence in public appointments at the time, but even more in showing that the Harvey brothers were vigorous, able men, doing well in the world and looking out for one another. Harvey held this post until 1643, when the House of Commons recommended his replacement by Dr Micklethwayte, as Harvey had become "delinquent" in his support of Charles I.

Patients

From 1609 Harvey devoted himself to medical practice, his hospital duties, anatomical and research studies and the RCPL. He must have encountered several interesting people of his time, and two of his patients are still of interest to us today. Francis Bacon was a brilliant man, who rose to be Lord Chancellor to James I and VI in 1618. Bacon believed in the exploration of the world by the collection of data, performance of experiments and judicious interpretation, and he held that this method would be "a light that would eventually disclose and bring into Syte all that is most hidden in the Universe" His ideas underlay the beliefs of those who founded the Royal Society in 1660. Harvey attended him for what was called gout, and it is suspected that the two did not get on. Aubrey's account of Bacon said "he had a delicate lively hazel eie. Dr Harvey told me that it was like the eie of a viper." This may not be unrelated to the fact that Bacon had a poor opinion of doctors, though not of the potential of medicine, and he often failed to follow their advice. He said "Medicine is a science which hath been more professed than laboured, and yet more laboured than advanced, the labour having been, in my judgement, rather in circle than in progression." Bacon died in 1621, and it is a pity that he did not live a few more years to have his views confounded by the publication of *De Motu Cordis* in 1628.

John Donne was one of the outstanding literary figures of the early seventeenth century, whose

work was noted for elaborate conceits, wit, puns and paradoxes. It is to him we owe the lines “No man is an Iland, intire of it selfe; every man is a piece of the Continent, a part of the maine...” Donne’s life was turbulent, but he caught the eye of King James and in 1621 was made Dean of St Pauls. He became seriously ill in 1623, while writing his Devotions, and James dispatched his physicians to look after him. The likelihood is that Sir Theodore de Mayerne was sent, but we know that he did not go alone, and it is most likely that Harvey, the king’s physician extraordinary, was the colleague who accompanied him on that occasion. Donne’s comment on this visitation was, “They have seene me and heard me, arraign’d me in these fetters, and received the evidence; I have cut up mine anatomy, dissected myself, and they are gone to read upon me.” Donne recovered, but his words reflect the accepting resignation of patients down the centuries.

Lumleian Lecturer

An important indication of Harvey’s growing reputation as a teacher and researcher was his appointment as Lumleian lecturer in 1615, just 8 years after he gained Fellowship of the College. Harvey’s lecture notes have been studied to determine how his ideas about the circulation of the blood may have developed. However, little is to be learned from the notes except that by 1616 he did not seem to have realised the function of the venous valves. It is inconceivable that the contents of *De Motu Cordis* sprang suddenly to his mind and he may have been conscious that the College required the Lumleian Lecturer to be respectful of the teachings of Galen. He was not overly respectful of Galen, but he needed to avoid outright unorthodoxy, if only so as not to have to pay fines to the College.

College Service

In addition to his medical practice, Harvey gave generous and conscientious attention to the RCPL. He became a Censor in 1613, an Elect in 1627 and Treasurer in 1628. The position of an Elect may not be familiar, but it is important to realise that this was a position second only to the President in seniority. Under Henry VIII’s 1518 charter, Thomas Linacre was charged with selecting a body of eight physicians, to be called the Elects, who would guide the affairs of the new College. Elects were appointed for life, the President was elected from their number, and they co-opted physicians to vacancies as they arose. Thomas Linacre himself became the first President of the College. Democracy was not the order of the day! A vacancy for an Elect arose in 1627 and the original choice was Sir Theodore de Mayerne, the King’s Physician, but when he declined because of his arduous duties at court, Harvey was elected unanimously. His accession to this very important post may have given him the confidence to publish, in 1628, *De Motu Cordis*, a book he recognised would be a severe shock to orthodoxy and which might bring him abuse and even enemies.

Royal Physician

Harvey was appointed, probably in 1618, as Physician Extraordinary to King James and this led him into the time consuming world of the Courts of James and Charles I. The Royal Physician at that time was the redoubtable Sir Theodore Turquet de Mayerne. Born in Geneva and trained at Heidelberg and Montpellier, he favoured a scientific approach to medicine and developed a particular interest in chemistry. He was an outstanding and meticulous clinician, but his modern views brought him into sharp contrast with those who clung to Hippocrates and Galen. Indeed, the only book he published was an apologia for his heterodox views. It is likely that he was instrumental in obtaining Harvey’s Royal appointment. How they got on with the King is hard to imagine, for de Mayerne wrote, “The King laughs at medicine and holds it so cheap that he declares physicians to be of very little use and hardly necessary. He asserts the art of medicine to be supported by mere conjectures and useless because uncertain.”

Death of James I and VI

Whatever James thought of doctors, he was not short of them in his final illness. James became ill with a fever while on retreat in Hertfordshire in March 1625. De Mayerne, the Royal Physician, was abroad and so Harvey his Physician Extraordinary was called. Unfortunately the King went steadily downhill and died. An autopsy showed only renal stones and one shrunken kidney, but no obvious cause of death and the suspicion arose that the King had been poisoned,

possibly by his favourite, the Duke of Buckingham. An enquiry was held and the records show that only Harvey's evidence gave a clear account by a physician who recognised the seriousness and inevitability of the situation. The other medical evidence, by the "sworn physicians" Drs Bedwin, Chambers, Lister and More, the Surgeon Mr Hayes and Sir Edward Payton, was incomprehensible. De Mayerne, with the authority of Royal Physician, might have avoided the wrangling and confusion, but not the outcome and Charles I, a few weeks after the enquiry, sent Harvey a letter of thanks, a gift of £100 and a "general pardon" to protect him from any blame.

De Motu Cordis

In spite of all this, in 1628 Harvey managed to publish *De Motu Cordis*- or to give it its full title, *Exercitatio anatomica de motu cordis et sanguinea in animalibus*- without question one of the most important books in the history of world medicine. In his conclusion in chapter 14, Harvey consigned previous knowledge of heart function to history. *"I am obliged to conclude that in animals the blood is driven round in circuit with an unceasing circular sort of movement, and this is an activity or function of the heart which it carries out by virtue of its pulsation, and that in sum it constitutes the sole reason for the heart's pulsative movement."*

Harvey, however, knew that the book was revolutionary and, wisely, he feared revolution. In chapter 8 he wrote *"I not only fear that I may suffer from the ill-will of a few, but dread lest all men turn against me"*. He continued *"the die has now been cast, and my hope lies in the love of truth and the clear sightedness of the trained mind."* As far as his clinical practice was concerned, his fears were more realistic than his hopes, for as Aubrey wrote *"he fell mightily in his Practize and that t'was believed by the vulgar that he was crack-brained; and that all the Physitians were against his Opinion and enveyed him."* Perhaps it was as well that he was paid by the King and St Bartholomew's Hospital.

By no means everyone, however, opposed Harvey's views, and among those who praised his work was René Descartes, the leading philosopher mathematician and scientist of his day - he of "cogito ergo sum"- who emphasised the importance of deduction in reaching valid conclusions about the world.

The Court World of the Stuart Kings

When Harvey became Physician Extraordinary to the King, he may not have realised that he would serve the first two Stuart monarchs, James I and VI and Charles I, for 31 years, live through one of the most turbulent periods of English history and live to see the unthinkable act of regicide. Harvey's loyalty to James and Charles, even if professional rather than ideological, remained unquestioned. The Court world of both kings was extravagant. Charles had to turn over most of his Crown lands to the City of London to meet his debts and in 1626 even the Crown jewels were pawned. However, on the positive side, the Stuarts were strong supporters of the arts, which flourished under their rule. I hope Harvey took some time to appreciate the more positive and pleasurable aspects of the Stuart Courts.

Masques

Masques were a feature of life at the Stuart Courts. These were magnificent entertainments including music, poetry, mime and dancing, in which participants dressed in elaborate costumes and performed against spectacular scenery.

Inigo Jones, (1573- 1652), was the chief architect of these masques and he designed the elaborate costumes and scenery. More than that, he became Surveyor to Charles I, in charge of all royal building projects and was the king's main adviser in matters artistic. He was dubbed the British Vitruvius. (Marcus Vitruvius Pollio was architect to the Roman Emperor Augustus and wrote *"De Architecture"*, the book that was the foundation stone of Renaissance architecture. Inigo Jones had travelled in Italy, where he learned Italian and acquired the drawings of the great Venetian architects Palladio and Scamozzi. He arrived in London in 1605, recommended by the king of Denmark and spent the rest of his professional life in the employment of James and Charles. His buildings included the Queen's House, for Anne of Denmark, at Greenwich and the New Banqueting House in Whitehall, based on a Roman basilica. Jones survived the Civil War. He was captured at the siege of Basing House in 1645, where his treatment was less than dignified, but he

lived for another six years in London, rich but with his civilised life only a memory.

Masques also require words and these were produced mainly by Ben Jonson, (1572-1637), the tempestuous son of a clergyman, who had become an actor by joining a London theatre company in 1597. His first play, "*Every Man in his Humour*", included William Shakespeare in the cast and made Jonson a celebrity. He was Court Poet to James in 1604 and began producing Masques with Inigo Jones from 1605, though intense rivalry between the two eventually destroyed their relationship.

The music for masques was provided by Henry Lawes (1595-1662) and his better known younger brother William (1602-1645). Their music, particularly William's, adorned the Court masques. William's work must have been well known to Harvey, for he was fiercely loyal to Charles and was killed fighting for Charles at the siege of Chester. The King, in fact, gave orders that he be kept out of trouble but William's impetuous nature allowed him fatally to escape his keepers.

Painting

Painting and sculpture benefited enormously from the Renaissance and, indeed, the word Renaissance makes us think of painting first. The dominant painter of the late Renaissance was Peter Paul Rubens, (1577-1640), who visited England and was knighted by Charles I. Rubens's most talented pupil was Anthony van Dyke, (1599-1641), who dominated English portraiture for many years. He settled in England, became Court painter to Charles I, and immortalised the court in a series of portraits that must have been known to Harvey.

The world of the Stuart Courts, in which Harvey found himself spending increasing time, contained many people of talent and ability in addition to favourites and hangers-on. Harvey must have at least known them and perhaps he was able to appreciate and enjoy their abilities.

The World of the Civil War

Charles I managed to rule successfully without Parliament for 12 years, but this came to an end over Charles's insistence on introducing his Catholic form of Episcopalianism throughout his kingdom. The Civil War, which began in 1642 and lasted until 1648, was a war that no-one wanted. It was Britain's only religious war, the whole country was affected, and it divided all levels of society.

Harvey found himself in Nottingham, in a new world with his old world upside down, when the King's standard was raised. The first military engagement took place at Edgehill in Warwickshire. Harvey was there and during the battle was given charge of the King's children, Charles, aged 12 and James, aged 9. As Aubrey described it, Harvey "*withdrew with them under a hedge, and took out of his pocket a booke and read: but he had not read very long before a bullet of a great gun grazed on the ground near him, which made him remove his station*". They all survived and a grateful King commissioned William Dobson to paint a picture of the future Charles II, which he gave to Harvey. This portrait now belongs to the Scottish National Portrait Gallery. The King advanced on London after the battle, but caution overcame him at Turnham Green and he retired to Oxford. His best chance to win the war was lost. Thereafter, the Civil War did not go well for Charles. The Royal armies were defeated at Marston Moor in 1643 and Naseby in Northamptonshire in 1644. Charles's cause was lost, he escaped from Oxford in disguise and surrendered to the Scots army. Parliament had won, but the country was in chaos.

After the surrender, Harvey stayed in Oxford until he was given a free pass to go to Newcastle, where Charles, a prisoner of the Scots Army, had requested his presence. When Charles was later handed over to Parliament, Harvey said goodbye to his royal patient for the last time. Soon, Parliament and the army fell out and in November 1648 the army ousted Parliament and condemned Charles in January 1649. The trial was a foregone conclusion and a large silent crowd groaned in despair when the execution took place. Harvey's medical career was effectively at an end and he entered the final world of the last eight years of his life.

The Closing World

We do not know where Harvey went after he left Newcastle. His wife had probably died in 1645 and he would have been on his own. He eventually settled with his brothers, Eliab and Daniel, near London. Both were wealthy, successful businessmen and Harvey would have been

able to live quietly and comfortably with them. Living quietly was probably the best that anyone could do at this time. At the end of the Civil War the country was in the grip of extreme Protestant fervour, a situation similar to Afghanistan under the Taliban.

Harvey became physically frailer and suffered from what has been called gout, but his mind remained sharp. Little was heard from him from 1646 until 1650. Indeed during this time, his colleagues on the continent believed that he had died and a Dutch version of *De Motu Cordis*, published in 1650, carried an "*Ode on the Death of Harvey*"! Somewhere around 1648 his friend Dr George Ent, knowing that Harvey had accumulated material on subjects other than the heart, found that he had written a further book and Ent undertook the publishing of this work. *De generatione animalium*, published as a handsome 300 page book in 1651, established Harvey as a leading embryologist. It was very well received, one critic saying, "... in that golden book on the generation of animals of William Harvey, greatest of physicians and anatomists".

Harvey returned to College activities in 1651. He generously gave funds for a new library, lived to see the building completed and gave his papers to the library, only for them to be destroyed by the disastrous fire of 1666. In 1654 he declined the Presidency of the College on grounds of age and infirmity. He demitted, in 1656, the office of Lumleian Lecturer, a post he had held for 40 years and was succeeded by his friend Dr Charles Scarborough, who was important in persuading Charles II to give the Royal College of Physicians of Edinburgh its Royal Charter.

Harvey continued to enjoy the company of his friends. These included Thomas Hobbes, the political philosopher, whose book, *Leviathan*, on human society and legitimate government, has directed much Western thought; and Robert Boyle, whose work established modern experimental method and underpinned a mechanical view of nature, and who was a founding member of the Royal Society.

Harvey died in 1657 and was buried in the family chapel at Hempstead Church on the Essex-Suffolk border. Harvey himself never visited Hempstead, but he is now the most famous person associated with that place, along with the highwayman Dick Turpin, who was born there in 1706. Harvey undoubtedly possessed great innate ability, but contemplating his life reminds us that innate ability alone does not suffice. He was born into a family in which innate ability was common, in which nurture in respect of mind and character was in plentiful supply, and in which mutual support was evident. His parents lived in a society that rewarded their ability and energy, allowing them to offer their children more and he benefited from outstanding teachers, especially in Padua, themselves liberated by the new ideas of the Renaissance. In London, his ability and character won him posts which gave him as good security as could be hoped for in his day, the RCPL gave him a platform on which to build his professional stature, and his personal contacts included able and influential people of wide and varied experience. Would he have achieved as much, or even more, with a modern full-time academic post? We will never know, but his life shows us that true achievement requires innate ability, character, encouragement, support, excellent teaching and an enquiring environment. The best homage we can pay Harvey is to try to supply these for the Harveys of tomorrow.

THE ONE HUNDRED AND SEVENTY SEVENTH ORDINARY MEETING

The One Hundred and Seventy Seventh Ordinary Meeting of the Society was held on March 10th 2007 at the Royal College of Physicians and Surgeons of Glasgow. Two speakers gave papers, Dr James Gray talked on Apothecary Delftware and Dr Graham Lowe talked on a Brief History of Dermatology.

APOTHECARY DELFTWARE

Delftware

The town of Delft in the Netherlands, where much pottery was produced, especially in the 17 and 18th centuries, has given its name to tin-glazed earthenware, which was also made in many other parts of the world. Strictly speaking, the word delftware should therefore be spelt with a lower case “d” unless it refers to material actually produced in Delft, when “Delftware” is correct. Tin-glazed earthenware is made by painting or dipping the once fired earthenware in a lead glaze containing tin oxide, which, on drying, gives the object a dusty, white surface upon which the potters could paint with a variety of colours. These were blue from cobalt, yellow from antimony, green from copper (or later a mixture of antimony and cobalt) and pinky-black from manganese. Iron compounds produced anything from red to a dull brown, depending on the subsequent firing temperature. This second firing permanently sealed the pigments in the glaze and brilliantly displayed the colours. Pot painters worked as if creating a fresco – there was no second chance if a mistake was made. This resulted in a spontaneous, naïve, but often charming style. Unglazed earthenware is porous, unless fired at a very high temperature, when it becomes the impervious and extremely hard “stoneware”. The glazes on delftware therefore served not only for decoration, but also to render the material watertight.

Apothecary

Mediaeval apothecaries were closely associated with the pepperers and spicers, who traded in expensive items of animal or vegetable origin, often derived from the Orient. The pepperers were wholesalers and the spicers were retailers, the latter becoming skilled also in the production and dispensing of medicines. Sonnedecker points out that by the 13th century, the term spicer and apothecary were often used interchangeably.

Later the pepperers and spicers formed the Grocers’ Company, whilst the apothecaries and druggists tended to continue separately in an unregulated way. During the reign of Henry VIII, however, those working in or near London were forbidden to practise without the authority of senior churchmen, assisted by four physicians or surgeons. Also during the 16th century, the College of Physicians succeeded in debarring apothecaries from their dispensing and advice-giving roles, which were felt, should become the exclusive province of doctors and surgeons. In 1617 the Worshipful Society of Apothecaries of London was founded and so began the further regulation and licensing of apothecaries.

By the 17th century, therefore, when much apothecary delftware was being produced in England, the distinction between apothecary and physician had become clearer. Yet some herbalists, apothecaries and physicians still remained associated with each other. The celebrated mid 17th century herbalist, Nicholas Culpeper, described himself as a “student in Physick and Astrology”. Medicinal herbs were to be gathered at certain propitious phases of the astral calendar and their physical appearance was often used to indicate their healing properties under the *Doctrine of Signatures*. Culpeper and other herbalists described in minute detail the preparation of herbal medicines, and also those medicines containing animal parts, the dispensing instructions, and clinical indications for using them.

Polypharmacy was the norm, most of the remedies containing multiple ingredients. Similarly, the indications for each preparation were numerous, ranging from tuberculosis and plague to sore joints, digestive, kidney, menstrual, and obstetric problems. Culpeper had an uneasy relationship with the College of Physicians and frequently wrote offensive or satirical criticisms on the practice of its Fellows.

The origins and spread of tin-glazed earthenware

Decorated tiles excavated in ancient Babylon (circa 600 B.C.) closely resemble tin-glazed earthenware. The Processional Way and Istar Gate were lined with colourful tiles depicting lions and dragons. However, instead of tin glaze, *romeite* (calcium pyroantimoniate) was used then and the pigment palette was relatively simple.

A millennium and a half later, once again in Mesopotamia, the tradition was revived, but now with tin-glazed ceramics. A major stimulus to their production was the import of true Chinese porcelain, brought in at great expense along the Spice and Silk Routes from the Far East. The secrets of porcelain manufacture were closely guarded, because this beautiful, translucent chinaware could be so thinly and delicately potted, unlike the coarser, light-opaque earthenware. The royal palaces and grand houses in Europe demanded these sophisticated Chinese porcelains. The secret of the manufacture of true porcelain, by adding china rock, or *petunze*, in the correct proportions to refined china clay, was not discovered in the West until early in the 18th century, at Meissen.

In the meantime, those in the West, who could not afford imported Chinese porcelain, contented themselves with tin-glazed earthenware. Attempts by western delftware painters to copy Chinese designs resulted in “*chinoiserie*” styles, which aped the genuine Chinese porcelain patterns, often with inaccurate and humorous results.

From the pottery kilns of the Near East, in present day Iran, Iraq and Egypt, the tin-glazed ware spread along Moorish trade routes in North Africa and then into Spain. Here it became known as Hispano-Moresque ware. Copper lustre was often used to decorate the huge chargers made for churches and palaces. Similar wares, but less often decorated with copper lustre, were introduced elsewhere. In Italy they were known as “*majolica*”, in France “*faïence*” and in the Netherlands either as Delftware or delftware, as described above.

Potters of tin-glazed ceramics were frequently subjected to persecution and had to flee to safer countries and they brought their skills with them. The introduction of delftware to England came about when Netherlandish potters, originally of Italian extraction, set up a pothouse in Norfolk early in the 16th century. From there the potters moved to London, concentrating on Lambeth and Southwark, where clay was plentiful. Then their influence gradually spread further afield to Brislington, Bristol, Wincanton, Liverpool, Dublin, Belfast, Rostrevor and, in Scotland, to the Broomielaw in Glasgow, where the pottery was named Delftfield.

The British delftware tradition and apothecary ware

The immigrant potters and pot painters trained local craftsmen and the delftware decoration, initially “European”, gradually acquired its own stylistic identity. Much delftware, however, was left white and undecorated. As this was considered utility ware, relatively few of the larger, unpainted, white items of apothecary delftware have survived, by comparison with the more highly prized blue and white or polychrome pieces. By contrast, many small examples of white ware, such as ointment pots, have been unearthed in excavations, or as a result of the bombing of London during the Second World War. Some of these small, early pots, however, were crudely decorated with circumferential blue bands or simple criss-cross patterns. Later, in the 18th century, the pots sometimes carried the name of the ointment and even the name and address of the pharmacist supplying them. These were usually painted in a neat, blue, cursive script or else in upper case lettering.

Apothecaries also commissioned pot painters to make larger wares, whose labels identified their contents and sometimes also bore the initials of the apothecary and a date year. The preparation was usually denoted in abbreviated Latin. For example, “Ung.” or simply “U” referred to “*unguentum*” or ointment. “C” stood variously for *conserve*, *confection* or “*cortex*”, as in Peruvian bark (quinine). Occasionally the cartouche painted on a drug jar was left blank so that the apothecary could stick an appropriate paper label in the space provided and then change the contents of the receptacle and its label as needed.

Many of the following descriptions are derived from *English Delftware Drug Jars* compiled from the Museum Collection of the Royal Pharmaceutical Society of Great Britain by the Keeper, Briony Hudson. Her correlation of the jars, with their probable contents and the uses to which drug recipes were put, is masterly. Acknowledgement is also made here to Iain Milne, Librarian, Royal College of Physicians of Edinburgh for his kind permission to study some early herbals and pharmacopoeias in his charge.

Apothecary ware was made in different shapes, depending on the consistency of the preparation. Thus syrups, often initialled with an "S" or "Syr", were put in wet drug jars with a spout, with or without a handle opposite. Dry drug jars containing pills or ointments lacked a spout and handle. Most drug jars had wide, circular rims, often everted, so that a parchment covering could be tied with a string around their necks.

An early form of dry drug jar, often in the Italian majolica style, was the tall cylindrical "albarello", with a narrow waist enabling it to be easily lifted off a high shelf in the apothecary's shop. When not painted outside with the drug name, albarellos probably doubled as flower vases. One such, holding irises, appears in the 15th century Portinari altarpiece by Hugo van der Goes, presently in the Uffizi Gallery, Florence.

The inscriptions on delftware drug jars, therefore, give some indication of their contents. "MEL SIMPL." on a late 17th century London, blue and white syrup jar denoted honey syrup with added vinegar. A "simple" originally referred to a remedy containing only one medicine. However, this term was soon applied to any kind of apothecary preparation, irrespective of the number of ingredients.

A dry jar labelled "ELECT. MITHRIDATIV" indicated an electuary, or paste, in the style of Mithridates VI, 1st century B.C., King of Pontus, who claimed to have become immune to poisoning by repeatedly taking antidotes. This electuary of Mithridates consisted of more than 50 different herbal preparations, the most active of which was probably St John's Wort. A less complicated formula made for a dry jar named "U. APOSTOL." or Apostles' Ointment after the 12 Apostles, contained a mere dozen herbs. One of these was verdigris, which was used for cleansing wounds and ulcers. Dry drug jars, also incorporating verdigris, were inscribed "UNG. EGYPTIACUM", or Egyptian ointment. This was reputedly based on a recipe on an ancient Egyptian papyrus.

It is instructive, where possible, to correlate the recipes for former remedies with our present day knowledge of their pharmaceutical effect. As in the electuary of Mithridates, St John's Wort or *Hypericum perforatum*, which also appeared in several other remedies, is now well known to have antidepressant properties. In 1718 John Quincy wrote in his *A Compleat English Dispensatory* that St John's Wort had many uses, including fomentations, the easing of obstructions of the urinary passages by stones, and the destruction of worms. In addition he wrote that some authors "...have much commended the use of this herb in *Melancholy* and *Distraction*, which seems to have given Occasions to some *Enthusiasts* to call it, *Fuga Daemonium*." Another wet drug jar, labelled "O. HYPERIC." for oil of St John's Wort, is dated 1723 and bears the initials, "I: P", of the commissioning apothecary, James Pitson, Master of the Society of Apothecaries that year. The jar is unusual in being painted in blue, green and a now faded red.

A blue and white painted dry drug jar labelled "EXT. CORT. PERU." dated about 1700, would have contained an extract of chinchona bark, from which quinine was derived. Peruvian bark was already known overseas for its antipyretic and antimalarial properties. Its pharmaceutical value, however, was less well understood in England. John Quincy wrote in 1718:

"This comes to us from Peru in the West-Indies: whence the Romish Missionaries first brought it into Europe, and gave it occasion for its being call'd Jesuits Bark. This Simple is so lately brought into Medicine, that there is little to be met with in Authors about it; and People's Notions seem yet so confus'd and undetermined concerning its Virtues and Efficacy..."

Quinine remains an effective treatment for malaria in some areas of the world, despite the widespread development of resistant strains of Plasmodia.

18th century wet drug jars, which would have contained opium, were variously labelled "S. DE. MECON." for Syrupus de meconio, "S: PAPAVER: ERR:" for syrup of wild poppies, or later in the century, "SYR. PAPAVERIS". These would have contained the heads and seeds of the poppy, *Papaver somniferum*, made into syrup, usually with honey. According to Quincy, such syrups were indicated as hypnotics and for coughs, catarrhs and "defluxions". Nicholas Culpeper recommended that this drug, inserted into a hollow tooth, would relieve the pain. Opium was a frequent ingredient in the polypharmaceutical medicines of the day and would have added a calming and analgesic effect to any remedy, irrespective of its other properties. Some opium containing concoctions, recommended for disorders of adults, were also given to wailing infants, to ensure that the nurse at least got a sound night's sleep!

Henbane, containing hyoscyamus, was considered a saturnine plant. *Hyoscyamus niger* grew in ditches “where they empty the common jakes” (latrines), but it was included in some remedies nonetheless. According to Culpeper, it “assuages inflammations of the cods and breasts, helps in deafness, noise and worms in the ears...” and it “killeth lice in man and beast.” Henbane fumes “healeth swellings and chilblains.” These uses have been well described in Professor Lee’s recent article in the *Journal of the Royal College of Physicians of Edinburgh*.

Dry drug jars labelled “PHIL. ROMAN” and, after 1746, “PHIL. LOND” (*Philonium londinensis*) contained both opium and henbane, among other ingredients. The name came from a 1st century physician, Philon of Tarsus, who practised in Asia Minor. There were warnings not to take henbane orally; drinking goat’s milk was the recommended antidote. Mountebanks, however, recognised the use of henbane fumes to befuddle their unsuspecting victims while they performed “healing” procedures like washing out their ears. The charlatans would then place chopped up lute strings in the aural washings to simulate the worms that they claimed to have flushed out!

A 16th century syrup jar, lavishly decorated with scrolls and chubby blue and white putti, came from the pottery in Albisola, North Italy. Labelled “SYR. BORAGIN.” It contained a complicated recipe including borage. According to Culpeper, borage, combined with fumitory, was indicated for inflammation of the eyes, skin diseases, including ringworm, as well as being regarded as a comfort to those with consumption or “troubled with often swoonings or passions of the heart.”

Culpeper also listed many indications for using borage, including putrid and pestilential fevers, defending the heart, resisting snake venom, pensiveness and melancholy, mitigating heat in fevers, opening obstructions, and for the yellow jaundice. In John Gerard’s herbal of 1597, borage was declared valuable for some of the same indications given by Culpeper. In addition, Gerard declared that the leaves and flowers “put into wine maketh men and women merrie and driveth away all melancholy.” He also wrote that the slimy substance of the root put into ale would alleviate the “paine in the backe, gotten by any violent motion, as in wrestling, or overmuch use of women...” and stimulate “the involuntarie flowing of the seed in men...” These were indeed the days of imaginative trial and error in herbal medicine.

“E. DIASCORDIUM” on an elaborately decorated dry jar, dating from the turn of the 17th century, denoted the electuary of water germander, *Teuchrium scordium*. Like so many other remedies, it also contained opium. This electuary was popular for the prevention and treatment of plague, one of the most feared illnesses of the century.

Animal parts, and even animal excreta, were incorporated in some preparations. Commonly prescribed in the 16th and 17th centuries, again for preventing and treating plague, was the Venice viper lozenge, which was also thought to be an antidote to poisons. Detailed instructions are given for preparing the snakes, and the parts of them to be used. A 17th century, dry drug jar, inscribed “T. DE VIPER”, contained viper trochisci, or viper lozenges. A head of Apollo, God of Healing, and two peacocks surmount this jar’s cartouche, like others of the period.

Animal based preparations included those made from foxes. The remedy “OLEUM VULPINUM”, or oil of fox, appearing on a 17th century dry jar, was prescribed for joint pains and rheumatic conditions. A fat, middle-aged fox, caught in the autumn by huntsmen, was preferred. After skinning, removing the entrails and skeleton, the remains were boiled and the fat separated to make a greasy preparation for local application. “LOHOCH E PULMONE VULPIS”, inscribed on another blue and white dry jar, was prepared from foxes’ lungs. A lohoch, or sticky paste, was traditionally sucked from a liquorice stick. This one was used for ulcers of the breasts and lungs. No account of apothecary delftware would be complete without reference to the numerous popular laxatives and purgatives then available. “C. PRUNELLO”, or conserve of wild sloes, gathered in the autumn before they withered, was regarded as effective in both diarrhoea and constipation. Too much looseness caused by this preparation might “tye up the Bowels so much as to throw the Patient into the contrary Extreme.” Magisterial syrup of apple, labelled “S DEPOM MAG” on a late 17th century wet drug jar, was a powerful laxative, probably more by reason of the senna and rhubarb it contained than the apple ingredient. Many other recipes for digestive complaints are listed in the herbals and pharmacopoeias.

Not all apothecary delftware was used functionally for preparing or holding drugs. The attractive 17th century pill slabs, produced for the Worshipful Society of Apothecaries of London, were unlikely to have been used for rolling pills. They were probably placed in the window of an

apothecary's shop or prominently displayed inside as an advertisement, or proof that the owner had the Society's approval. Some of the pill slabs are shield shaped or octagonal but a few are elegantly heart shaped. Many of them are painted in blue and white but others more elaborately coloured. Most carry the Arms of the Society. These comprise a rhinoceros above a figure of Apollo, who is shown with his bow and arrow slaying the dragon of disease, all in a shield, supported by a unicorn on either side. Both rhinoceros horn and the horn of the mythical unicorn were supposed to have pharmaceutical properties. The Society's motto is almost invariably given below: *Operifque per orbem dicor.* (It is said that I bring help everywhere in the world.)

Finally, magnificent, polychrome, showpiece, drug jars can be seen in the Society of Apothecaries in Blackfriars' Street, London, or in the museum of the Royal Pharmaceutical Society of Great Britain. These large, purely decorative, non-functional jars again carry the Society's Arms and emphasise the Society's prestige in Medicine and Pharmacy in the 17th century.

A BRIEF HISTORY OF DERMATOLOGY

Isolated accounts of skin disorders can be found from earliest times, but descriptive imprecision and vague terminology meant that useful communication between writers was impossible and so confusion reigned. The first book devoted to the subject by Mercurialis in 1572 retained Galen's classification of skin diseases into those affecting the scalp (eleven chapters) and those affecting the rest of the body (just six chapters). The first book on skin disease to be written in English, (apart from the required Latin prescriptions), by Daniel Turner in 1712, consisted of a review of the literature on dermatology as it was known at that time, the text vividly illustrated by word pictures. Turner's efforts were belittled in this country by the spite and envy of his contemporaries, but the book was better appreciated on the continent, being translated into German and French and running to five editions.

By the end of the 18th century there existed a limited clinical database with some recognisable terms such as erysipelas and favus, but for the most part chaos prevailed with arbitrary division and ill-defined terminology. However, around this time, serious attempts began to be made in bringing some semblance of order and more rational nomenclature, stimulated by the work of Linnaeus, whose careful observation of detail had provided the basis for classification of plants. The first to classify skin disease on the basis of clinical appearance rather than the area of the body involved was the Viennese military surgeon Joseph Plenck. His scheme, although derided by some, was later to serve as the model for the man who revolutionised the outlook on dermatology, a Yorkshireman trained in Edinburgh by the name of Robert Willan.

Working at the public dispensary in London, Willan would sketch and make notes of the various contagious fevers and more mundane skin eruptions he encountered, recording the variations in configuration, colour and arrangement. Armed with this information, he then defined a set of skin diseases and found a way of classifying them on the basis of the morphology of the lesions when the disease was at its height. Willan's first task was to define more accurately the primary lesions of the skin, and the page of illustrated definitions in his great work 'On Cutaneous Diseases' could well be considered the most important dermatologic illustration ever published. Willan adopted the Linnaean pattern of orders, genera and species. He recognised eight orders, the first four of which were covered in Part I of his book. The genera consisted of conditions in which one or other of these orders formed the essential lesion. The book was further enhanced by the inclusion of 33 hand-coloured copper plate engravings depicting the diseases described. Willan was unable to publish the second part of his book, as he was stricken with cardiac disease and died in Madeira. It fell to his pupil, colleague and fellow Edinburgh graduate Thomas Bateman to complete the work in 1813, adding some observations of his own including the classic description of molluscum contagiosum. Following this four years later with an atlas, Bateman faithfully carried the mantle of his friend and master, and together their work laid the foundation for modern dermatology.

Willan and Bateman's books gave physicians of the day a step by step guide on how to arrive at a proper diagnosis. First examine the eruption carefully, (and cultivating the habit of inspection was a pre-requisite for success), second identify which of the eight essential lesions was present, and third consult a Willanist text to find the diseases that produce such lesions. All being well, one then held the key to the nature of the skin disease. Of course, nothing is ever quite so simple, for secondary effects such as scratching and infection would have to be taken into account, and the

system has required a certain amount of refining with time. Further, the Linnaean classification, which was based on a belief in the fixity of species, did not lend itself to rapidly changing disease processes which leapt from order to order during their course, so that genera came to be distinguished from one another by somewhat diverse criteria. But as Bateman cried to critics, 'What classification is free from imperfections?' To this day we still teach our medical students the so-called alphabet of skin disease that was defined by Willan two centuries ago, and it is fitting that the man who was pivotal in freeing dermatology from ancient philosophical doctrines gives his name to our National Association's building in London.

Meanwhile, at l'Hôpital Saint Louis in Paris, the world's first great dermatology teaching centre was becoming established, much of its success due to the showmanship and oratorical skills of the founder Jean Louis Alibert. His fluent speech bubbled with metaphors and original humour, the best known example being that of a syphilitic prostitute presented as 'a priestess of Venus wounded by a perfidious dart of love'. The clinics became so popular, that they had to be moved outside to the hospital courtyard. Alibert was also a skilful observer and recorded his findings in superbly illustrated publications. He is recognized today as the founder of French dermatology and one of the most important figures in the development of the specialty.

Alibert's Swiss pupil, friend and colleague Laurent Biett was a masterful clinician and no nonsense lecturer. While Alibert was away tending to the ailments of the king, Biett visited Bateman's clinic in England, converted to the Willan system, and installed this at the Saint Louis. Alibert was appalled – although he gave full tribute to Willan's precise descriptions, his view was that the elementary lesions were only one part of skin diseases, and that to classify these adequately, or rather to group them together, required taking into account not a single criterion, but many - Cause (when known), Course, Duration, Appearance and Response to therapy - "the natural method". After two years of secretive work, Alibert produced his famous genealogical "tree of dermatoses" to express the relationship between skin diseases, but Biett countered that the Willanist method was clearer, easier to use and more natural, and this view prevailed.

By the mid 19th century, the centre of pioneering dermatology had shifted from England and France to Austria, where in Vienna Ferdinand von Hebra, who had trained under the pathologist Rokitansky and the physician Skoda, became 'Mr Dermatology', students coming from far and wide to be enlightened. Hebra reclassified skin diseases on the basis of the newer concepts of general pathology and his work on 'artificial eczema' laid groundwork for later experimental dermatology.

England's answer to Hebra was Erasmus Wilson. Totally self-taught, as at that time there was no expert in diseases of the skin practising in the capital, he founded and edited the first journal in English devoted to the specialty, and wrote popular textbooks for both physicians and patients. He was a wealthy man from shrewd investments and was somewhat self-opinionated, but at the same time active in many charitable enterprises. He endowed a Chair of Pathology at Aberdeen in memory of his father, was rewarded by the Humane Society for rescuing a lady from drowning in Regent's Park Canal, gave evidence at an inquest that led to abolition of flogging in the services, and he financed the transportation of Cleopatra's needle from Alexandria to the Thames embankment.

Dermatology evolved as a branch of internal medicine during the nineteenth century. Indeed chronic infections that involved the skin such as syphilis and tuberculosis formed a significant part of the general physician's practice. Many of the great physicians recorded their observations, and later some began to specialise in skin disease. This trend towards increasing specialisation has continued ever since.

The British Journal of Dermatology first appeared in 1888, the brainchild of Malcolm Morris of London and Henry Brooke of Manchester, their appetites no doubt whetted by experiences gleaned in major European centres, where, in Paris for example, L'Hôpital St Louis boasted 600 beds together with staff, laboratories, library and lecture rooms that must have seemed to them beyond belief.

The most famous dermatologist at the turn of the century was Paul Gerson Unna. In his own private compound in Hamburg, the 'Dermatologikum', he successfully carried out activities normally to be found only at a great University centre. He made many contributions to the specialty, although was best known in his day as a master and teacher of histopathology. The humble skin biopsy was

the catalyst for a plethora of pathological knowledge, better understanding of pathogenesis, and more rational treatment. Prior to this the emphasis had been very much on clinical description, profusion of synonyms and empirical treatment. More recent times have seen sophisticated research techniques lead to an explosion of knowledge, and increasing interest in skin research from non-medical scientists.

In the latter half of the 19th and early part of the 20th centuries, the remarkably realistic moulages made by the likes of Baretta in Paris and Elfinger in Vienna were highly prized anatomic and dermatologic teaching aids. The development of 35mm colour slides would cause them to become museum curiosities, just as PowerPoint is now doing to the colour slides. Such is the nature of progress, but the moulages remain a testament to the skill of their makers.

In Scotland, Thomas McCall Anderson, Physician at the Western Infirmary in Glasgow, was keenly interested in dermatology, for he had trained with Bazin in Paris and Hebra in Vienna. He helped to found the Glasgow Skin Dispensary in 1861 and took charge of skin patients at the Western. He was later appointed Regius Professor of Medicine at the University of Glasgow, and knighted in 1905.

Jamieson in Edinburgh was, together with McCall Anderson, the mainstay of Scottish Dermatology in the later 19th century. He had also trained with Hebra after being persuaded by Argyll Robertson to take up dermatology, although it was to be several years before the Royal Infirmary elected him as Extraordinary Physician for Diseases of the Skin. His teaching clinics were to become the foremost in the United Kingdom.

Jamieson was joined in 1892 by Norman Walker who had trained in Vienna, Prague and Hamburg, where he is said to have been Unna's favourite pupil and translated the master's famous work on histopathology. He served on the General Medical Council for 30 years, becoming President in 1931. He was knighted for advising the India Office on medical education, and in the last stages of emaciation was one of the first to be rescued by the arrival of insulin from Canada.

Walker had founded the Scottish Dermatological Society in 1924, this comprising five dermatologists from Glasgow, four from Edinburgh, two from Dundee and one each from Aberdeen and Newcastle. Sir Robert Bolam from Newcastle was a close friend of Walker's from GMC work, and his inclusion led to the Society being originally named the North British Dermatological Society, and it was not until 46 years later that it assumed its proper title. Although now much larger, the Society retains its friendly informality, North of England colleagues are still included in the fold, and 3 meetings each year with presentation of live clinical cases continue to this day. With increasing influence on the political scene since devolution, the SDS is very much a force to be reckoned with in the modern arena. Although the keeping of Minutes was not officially sanctioned until 1950, the 'Wee Red Book' contains a careful record of Society proceedings from the beginning.

Dermatology treatment patterns have of course changed considerably over the years and will continue to do so. Although we still bleed patients and cover them with tar occasionally, radium needles have given way to photodynamic therapy and immune response modifiers are current flavour of the month. We would do well to remember, however, that history has taught us that side-effects of new treatments may take a long time to appear.

THE SIXTEENTH HALDANE TAIT LECTURE

The Sixteenth Haldane Tait Lecture was held in St Leonard's House at the Pollock Halls of the University of Edinburgh on May 2nd 2007. The speaker was Martin Kemp, Professor of the History of Art at the University of Oxford and the title of his talk was Leonardo's Philosophical Anatomies. This was a wonderful lecture, which was illustrated with a variety of magnificent works by Leonardo da Vinci. It was followed by an excellent meal, rounding off a memorable evening.

THE ONE HUNDRED AND SEVENTY EIGHTH ORDINARY MEETING

The One Hundred and Seventy Eighth Ordinary Meeting of the Society was held in New Hall at the University of St Andrews on June 16th 2007. Mrs Norah Bartlett talked on Illness in Jane Austen and Dr Tony Butler talked on Franz Berhold, Swedish Composer and Orthopaedic Practitioner.

IN SICKNESS AND IN HEALTH: COURTING AND NURSING IN SOME JANE AUSTEN NOVELS

I'm going to be talking about the role of illness in Jane Austen's novels, but I want to begin with her own last illness. Not so much the controversy about what exactly the illness was, though I will touch on that, as what her experience of illness and its treatment was. Her letters rarely complain about her symptoms- more often joking than complaining, about what sound like alarming experiences- but they do describe them, and it is possible to use stray remarks in her letters to build up a picture of what the last year and a half of her life, the part really marked by illness, was like.

To give those last years a context, Jane Austen was born in the rectory of Steventon, Hampshire, in 1775 and was one of seven children. Her brothers- except for one who was mentally and physically disabled- all married, but she and her sister Cassandra did not. In a phrase that is perhaps no longer in use, they "remained at home", though home moved several times, not always to their liking. She wrote three novels in her twenties, which were not published until she was over thirty and three further novels in the years leading up to her death, by which time she was living with her mother- a lifelong hypochondriac- and sister in another Hampshire village, Chawton. The novels were published anonymously "by a lady", but by 1816, when she had turned forty, a number of people were in on the secret of their authorship.

Her biographer, Claire Tomalin, says that "about the beginning of 1816 she began to suffer in some indefinable way." Her letters, and other family letters, mention backache, abdominal pain, gastric upsets, lack of appetite, headache, sudden rises and drops in temperature. She herself commented on a blotchy complexion "black and white" she called it in one letter, trying to make light of it but obviously in distress. As a young girl she had been feted for her complexion and she minded this change in her appearance. She was dead within eighteen months.

In 1962, the eminent physician, Sir Zachary Cope, suggested that her illness had been Addison's Disease, caused by tuberculosis of the adrenal glands- another famous sufferer was John F Kennedy, a man who otherwise seems to have little in common with Jane Austen, and who living a century later was treated with cortisone. Addison's disease would explain the blotchy complexion, the diarrhoea and some of the other symptoms. But more recently there have been suggestions that an earlier mild illness mentioned in her letters was actually the onset of a cancer that eventually produced Addison's type effects. In either case, she was suffering from a disease that the medicine of her time was unable to cure.

But not unable to treat. Those of us who are familiar with her novels will remember that dependence on medical advice- fussing about one's own health or that of others- is frequently made fun of. We'll be looking at this attitude in more detail later, but here it is enough to remember that she often found humour not in illness, but in those who fancy themselves ill. In her letters she poked gentle fun at her mother's hypochondria, which was of the sort familiar to most of us which stops sufferers doing what they don't want to do, while permitting them a wide range of activities to enjoy. It has been suggested by some biographers that her impatience with her mother's malingering was sometimes less than gentle, and that is one of the reasons that her relatives destroyed so many of her letters. We do know that the genuinely ill, the dying, Jane Austen spent her days on an "arrangement of three chairs" "*I THINK she had a pillow*", one of her nieces remembered- while her mother who lived to almost 90 and survived Jane by 10 years, hoggied the sofa. There is more than one way of reading this apparently ghastly situation, however, and we'll come back to this picture of the three women in their living room later.

We can imagine that Jane Austen, who enjoyed activity and disliked pity, hated being ill. But

as her symptoms worsened, as she grew weaker, her sister turned more and more to the local medical man nearest to Chawton, and in 1817 that gentleman, Mr Curtis, suggested she need more specialist advice. A trip to London to a physician was mooted and then discarded – it was very much against Jane’s wishes- and what was decided upon was seeking the advice of Mr Lyford, a surgeon general connected to the hospital at Winchester, 16 miles away. This gentleman was able to put a stop to the dreadful diarrhoea – she called it a discharge- that was weakening and shaming her, but he wanted to see what a few weeks under her care could do for her other symptoms. Towards the end of May she was conveyed by carriage to Winchester. She never returned- according to family tradition the surgeon - whose father had been an apothecary who had treated the Austens during Jane’s childhood - knew that she was dying the first time he looked at her, but hoped to alleviate her suffering. She did not attend his surgeries at the hospital, but was treated in her lodgings as a private patient; she was accompanied by her sister Cassandra who nursed her day and night. For a time a professional nurse, a local woman, was hired to “watch” her during Cassandra’s absences, but this was found unsatisfactory and a sister-in-law – alas a much-disliked one – came to share the nursing. She died in Cassandra’s arms during the night of July 17. Earlier in the day she had taken leave of her medical man, Mr Lyford and almost her last voluntary utterance was thanks to him for her care.

I stress this, and I name the otherwise little known practitioners, because as well as providing poignant details of the passing of a brilliant woman who was also part of a loving family, the incident provides a tiny window through which we can see the medical professions at work in the English provinces near the close of what the historians call the long eighteenth century. The local man – probably an apothecary, so on a lower tier of the accredited medical professions, but licensed, a member of the Society of Apothecaries, a man who has served a long apprenticeship and who probably, called in so frequently to such a well-connected family as the Austens, has much experience – the local man who feels himself unequal to the situation. Suggests, first, the visit to a London physician, who will probably be a University graduate and a member of the Royal College of Physicians, the top tier in the hierarchy of the medical professions. But what is decided upon is a visit from a surgeon – a compromise, and a welcome one for a woman who does not want to spend her last days in London. By 1817, most cities the size of Winchester had hospitals and some were training centres. Surgeons had of course only been technically sundered from their association with barbers for a little over sixty years, but their seven year apprenticeship was for some a rigorous training and the diaries of University trained physicians from this period reveal that some of them stood in awe of their surgeon colleagues as practitioners. So the Austen family, who would be paying large fees for Mr Lyford’s private visits and for the rooms they rented for the last months of her illness, were not taking the low road.

For a time, let’s not forget, they also paid for a nurse, but she was found – no explanation provided, no name given – wanting. A family member, also female, was substituted. And this fills out the picture, for although, as this story shows, the middle classes consulted a variety of medical men and also paid for nursing care – watching the sick was a recognised profession – in the main it was the family who provided assistance to the ill. In Jane Austen’s life this was provided by female family members – though the coach that took her to Winchester had three outriders, two of her brothers and a nephew, to be there in the case of any sudden emergency. In the novels too, we will see that though the heroine of *Persuasion* says explicitly that “*nursing does not belong to a man, it is not in his province*” – some kinds of nursing, as well as a great deal of accident and emergency activity, may fall to men.

Jane Austen’s novels famously pay little attention to politics and warfare, and some readers – erroneously of course - have found them wanting in action and event. I will be dealing in detail with only four of the six novels, but I will start with a quick run through of the events in the novels that might be thought to call for medical intervention. Of the three written when Jane Austen was young and in full health, in *Sense and Sensibility* there are two deaths, a sprained ankle, four fainting fits and five fits of hysterics, a nervous breakdown, a case of questionable anorexia and a “putrid fever”. In *Pride and Prejudice* there is a feverish cold requiring bed rest, a 20 year bout of nerves, a pregnancy and a case of permanent invalidism in a very young woman, plus a few fainting and hysterical fits. In *Northanger Abbey* there is a female complaint of an undisclosed nature which ends in a mysterious death ; among the later novels *Mansfield Park* has alcoholism,

chronic fatigue, depression, a fall which brings on a near-fatal fever, and two deaths among the clergy, one from over-eating. *Emma* has hypochondria, throat infections, a turned ankle, another pregnancy, more mysterious feminine complaints, and toothache. *Persuasion* has death at sea, depression again, chronic indisposition/hypochondria, gout and a couple of life endangering falls – is it any wonder that one critic asks, “*why are these English families so accident-prone?*”

To move in closer: *Sense and Sensibility* was not Jane Austen’s first novel- that was a version of what became *Pride and Prejudice*- but it was the first published, coming out in 1811. It is the story of two sisters, Elinor and Marianne, whose father’s early death has left them in genteel poverty, and who are both in love with young men who are, or seem to be, out of their reach.

When I list the medically relevant events in *Sense and Sensibility*, I neglected to say that most of them happened to one person; Marianne, the sister who represents “sensibility” or feeling, or excessive feeling. Marianne, at 16, believes in true love, but unfortunately falls in love with someone who is untrue, one of Jane Austen’s attractive rascals, Willoughby. But before she falls in love, she falls: down a hill, spraining her ankle and making it necessary for Willoughby- at this point a complete stranger- to touch her, to pick her up and carry her, displaying not only his strength but his presence of mind- as well as his total ignorance of proper accident and emergency procedures, he should not have moved her without seeking medical advice! We will see this again, I’m sorry to say, but here I would just like to point out a few things about this scene (described in the quotation below) in which the girls are running downhill towards their house to get away from a sudden shower of rain-

..Marianne had...the advantage, but a false step brought her suddenly to the ground... a gentleman carrying a gun... was passing up the hill... when her accident happened. He put down his gun and ran to her assistance. She had raised herself up from the ground, but her foot had been twisted in the fall, and she was scarcely able to stand. The gentleman offered his services, and perceiving that her modesty declined what her situation rendered necessary, he took her up in his arms without delay and carried her down the hill... he bore her directly into the house... and quitted not his hold until he had seated her in a chair in the parlour.

Jane Austen’s novels are very often treated as though they were written by a brainy middle aged spinster who was not much interested in bodies; this novel was written, of course, by a young woman who had every reason to look forward to marriage, but even her later novels, as we’ll see, concern themselves with the workings of the body- sick or well. Here we see Willoughby – carefully putting down his gun before he runs to the strange young lady’s side; right now he doesn’t want to kill her, though later he nearly will. He lifts her without hesitating, without further delay, despite her maidenly protests and doesn’t let go until he sees her safe. Here he shows a readiness to touch, to act- both strength and tenderness. He is going to turn out to be a cad in vol. II, but he seems capable of giving. The key seems to be the capacity for gentle, unhesitating action. And this is of course, before the two young people have been formally introduced.

Next day he comes to visit her when she is resting on the sofa- the family have not sought other medical help, the experience and knowledge of mother and sister, and the visits of Willoughby, are rightly deemed to be enough. It is striking that it is only when Marianne is languishing on the sofa that her appearance is actually described for the reader for the first time; it is chapter 19, but we are only just now that we are seeing, along with Willoughby, - that she is “a beautiful girl”, as if the attitude of a patient were a particularly flattering one.

A good thing too, if it is, for Marianne, after only five chapters of extravagant courtship from Willoughby, is deserted by him and begins a slow decline into first psychosomatic, then real organic illness: after months of unhappiness, a couple of evening walks in wet grass (and wet feet were taken seriously in this period); one physician writes in 1807, “*I have known many evils befall the fair sex from cold feet*”

And not only the fair sex, for at least one of George III’s physicians attribute HIS famous malady to cold feet- walking in wet grass and sitting in wet shoes and stockings giving her “fever... pain in her limbs, cough and a sore throat...” Home remedies are tried, but two racking nights, “watching” Marianne by herself- their mother is absent- lead her sister Elinor- the girl who represents “sense”, and who is managing her own broken heart more quietly- to send for the apothecary.

An entire chapter is devoted to the nursing of the acutely ill Marianne by Elinor, along with

another who has much experience of nursing, some unnamed servants and the apothecary Mr Harris, who comes every morning, even though he first regards it as not a very serious case- "*though (his) allowing the word 'infection' to pass his lips*" results in the owners of the house where the girls are staying immediately decamping with their young baby.

Marianne was abandoned by Willoughby in Chapter 15 and this is 43: for a very long time she has pined in the romantic fashion she approves, eating next to nothing, sleeping little, avoiding company. When infection comes the fever nearly overwhelms her weakened body and Elinor, who has sometimes tried to reason Marianne out of the emotional, the self indulgent part of her affliction, now that it has become a physical illness, is a devoted nurse, scarcely leaving her sister for a moment, giving her the apothecary's cordials, taking her pulse, watching her even while she sleeps in the hope that sleep will refresh her,

But sleep brings only delirium- in one harrowing instance, the poor young girl, only 16 after all, starts up from the pillow and begins looking everywhere for her mother. Elinor- only 19 herself- is terrified; Marianne is delirious for a long time. Even if she lives, will she ever come back to her right mind?

In these events, the apothecary is a shadowy figure, coming and going, his only quoted word the frightening "infection". Elinor seems almost impatient with him, though the careful reader can note that his morning visits occur around 5 am, followed by another less than 12 hours later:

Mr Harris was punctual in his second visit: but he came to be disappointed in his hopes of what the last would produce. His medicines had failed... the fever was unabated: and Marianne only more quiet – not more herself- remained in a heavy stupor. Elinor, catching all, and more than all, his fears in a moment, proposed to call in further advice. But he judged it unnecessary; he still had something more to try, some fresh application of whose success he was almost as confident as the last, and his visit concluded with encouraging assurances which reached the ear, but could not enter the heart of (Elinor)...

Despite Elinor's doubts, the "fresh applications"- or something"- does bring about the hoped for change in Marianne, and within a few hours the apothecary and the nurses are congratulating each other "he declared her entirely out of danger". Elinor relieved but still worried, continues to watch over her, now naturally sleeping, sister until her mother finally does arrive.

Aside from "infection" and "fever" the category of Marianne's illness is not named and the reader sees it entirely through Elinor's and the nurse's experience of it. Here Jane Austen is not interested in a set of symptoms, but in a situation, in the emotional and physical tenderness between two people who share an experience. The two sisters have become for a time nurse and patient and we see the patient through the nurse.

Pride and Prejudice, the next novel to be published, again a novel written by a woman in her twenties, though revised by the same woman ten years later, presents the same situation. Early in the novel, Elizabeth, the heroine, is moved by sisterly devotion, though it is a less serious illness, a "sore throat and headache" suffered by her sister, Jane, that leads her to walk three miles on a wet day, in order to "watch" at Jane's bedside (by doing so, she gets her stocking dirty, earning the scorn of the Bingley sisters, though not that of Mr Darcy.)

When breakfast was over, they were joined by the sisters, and Elizabeth began to like them herself, when she saw how much affection and solicitude they shewed for Jane. The apothecary came and.. said...that she had caught a violent cold... advised her to return to bed and promised her some draughts. The advice was followed readily, for the feverish symptoms increased and her head ached- acutely. Elizabeth did not quit her room for a moment, nor were the other ladies often absent: the gentlemen being out, they had in fact nothing to do elsewhere....

The last line points out with characteristic tartness the distinction between genuine and affected solicitude, between Elizabeth and the Bingley sisters. Readers may have forgotten that this illness of Jane's, as well as being much less serious than Marianne's, is much more nakedly a plot device: Jane is ill enough to desire Elizabeth's nursing, so much more genuine than that of the

Bingley girls or “the servants”, or even that of Mr Jones the apothecary, so Elizabeth stays in the house for a week and is thrown together with Mr Darcy in the evenings. It is during these evenings at Netherfield that Mr Darcy falls in love with Elizabeth.

Readers will also remember that when Darcy proposes to Elizabeth for the first time, more than 20 chapters later, Elizabeth is completely taken by surprise, though the reader is not and Mr Darcy is surprised at her surprise. “I believed you to be wishing, to be... expecting my addresses”, he tells her many chapters later, when they are finally engaged. He thinks he’s been courting her for those 20 chapters, but she doesn’t know it and indeed is more taken aback at his proposal than she was at Mr Collins’s much earlier one, which follows three or four days of obvious if bumbling attentions to her. At the novel’s end, happily talking to and teasing Mr Darcy, she asks him what made him fall in love with her, and he reminds her of the time he spent watching her nurse her sister through that bout of illness; it was not only her “lively mind” which drew him, he tells her, but the “affectionate behaviour” he saw in her then. Nursing here is read as a visible sign of goodness, of being, that very important quality in Jane Austen- good natured”. In the recognised rituals of courtship- dancing, flirting, conversing- one might hide as well as show one’s real nature; in illness one cannot hide it, and perhaps the care of the sick is as revealing as illness itself.

Before we leave *Pride and Prejudice* I would like to consider an illness that we might as readers forget, and one which we are surely encouraged to make light of and that is Mrs Bennet’s nerves. Here Mrs Bennet, the mother of five unmarried daughters, castigates her husband’s refusal to show enthusiasm for her campaign to find them husbands.

“Mr Bennet, how can you abuse your own children in this way? You take delight in vexing me. You have no compassion on my poor nerves. You mistake me, my dear. I have a high respect for your nerves. They are my old friends. I have heard you mention them with consideration these twenty years at least. Ah! You do not know what I suffer.”

Mr Bennet may have had compassion on his wife’s nerves- though I see little sign of it- but the reader has been guided, from the very beginning of the novel, not to; in the famous catalogue of abuse that closes Chapter 1

“She was a woman of little understanding, little information and uncertain temper. When she was discontented she fancied herself nervous...”

There we are then, instructed not to trouble ourselves over HER nerves. The 20 year duration is interesting; her “nerves” date from some time after the birth of Jane and Elizabeth, the beautiful talented rational first children, presumably born and passing their early childhood in the honeymoon period when sexual attraction to the young Mrs Bennet blinded her husband to the grosser faults of intellect and temperaments; the nerves seem to start around the birth of Mary, whose plainness and pedantry is treated so comically, and continues, understandably, through the births and childhoods of the two noisy hoydens Kitty and Lydia.

Now, when Mrs Bennet is attributing her frustration at the circumstances of her life to “nerves”, to an illness, she is not only joining the ranks of Jane Austen’s hypochondriacs, she is using a fashionable term. “It was only in the 18th century”, writes the medical historian WF Bynum, “that it became possible to suffer from ‘nerves’”. Fibres and tendons in human and animal bodies that had been poked and prodded in experiments to discover the nature of physical feeling in the first part of the century had come, by the end of the century, to be connected with the language of feeling in another sense- a sense that is referred to in the OED as “unscientific” and by Dr Johnson as “medical cant”. I take this to be analogous with the way in which, in our lifetime, the word “trauma” which once had a distinct medical meaning, is now on everyone’s lips to describe the effects of a lost wallet or a bad party. The term “nerves”, by the close of the 18th century, was used in England to refer to feelings or spirits, usually, though not always, afflicted ones. It is taken by at least one writer to be characteristically English- the subtitle of on popular 18th century treatise on nervous disorders is *THE ENGLISH MALADY*. Whether that is true or not, the term interestingly has stood the test of time; “nerves of steel” is a phrase from a 19th century poet; “my nerves are bad tonight” is a phrase from a 20th century one. And it is still possible to buy “nerve

tonics” on the Internet.

Mrs Bennet was in good, or at least high class, company in having nerves she liked to talk about. George III, not believing that wet feet were the cause of his sufferings, said, very movingly, in 1788 *“I am nervous. I am not ill, but I am nervous; if you would know what the matter is with me, I am nervous.”*

The symptoms of the King, unlike those of Mrs Bennet, received a great deal of attention at the time and still do. His, of course, seem to have proceeded from an organic cause, whereas hers- certainly as we are encouraged to read them- are so variable and so dependant on circumstances and mood, as to arise, we decide, purely from the desire for attention that is one of the characteristics of the hysterical personality.

And- though they erode her husband’s and her children’s respect for her- they do the job; when, in one of the novel’s major plot events, her 16 year old daughter Lydia elopes with the wastrel Wickham, Mrs Bennet moves, not to assist or advise, but to claim all the attention that she can. Jane, her chief carer, tells Elizabeth that on receiving the terrible news:

“My mother was taken ill immediately... (she) was in hysterics, and although I endeavoured to give her every assistance in my power, I’m afraid I did not do as much as I might have done.”

During the anxious days in which they await news of the scapegrace couple, Mrs Bennet takes to her bed and remains there, claiming the constant attendance of Jane, or the housekeeper, or another nurse attendant of some kind.

“Mrs Bennet... received them exactly as might be expected; with tears and lamentations of regret, invectives against the villainous conduct of Wickham, and complaints of her own sufferings and ill-usage; blaming everybody but the person to whose ill judging indulgence the errors of her daughter must be principally owing... ‘tell Mr Bennet what a dreadful state I am in- that I am frightened out of my wits; and have such tremblings, such flutterings all over me, such spasms in my side and pains in my head and such beatings at heart, that I can get no rest by night or day...”

This list of symptoms- notice that they are all over her body: as one nerve specialist of the time commented, thinking perhaps of his fees, “the nerves go everywhere”- the list is designed precisely not to elicit the reader’s sympathy; we don’t see it through a tender nurse’s eye, but through a cold authorial one that enjoys producing the diffuse litanies of self contradiction that characterise Mrs B’s speech; she interrupts this medical report to speculate about what Lydia will wear to a Wedding that may never happen.

And if she has little hope of appealing to the reader’s sympathies, she really is wasting her breath where Mrs Bennet is concerned. As he watches Jane bearing a heavy-laden tray of tea things up to her mother’s room, he gloomily considers the state of the marriage and the family life he shares with this demanding weakling.

“‘This is a parade’, cried he ‘which does one good’; ‘it gives such an elegance to misfortune! Another day I will do the same; I will sit in my library, in my nightcap and powdering gown, and give as much trouble as I can...’”

Like Mr Bennet, the novel seems unable to forgive Mrs Bennet for anything; but her constitution is forgiving. When catastrophe is averted and Lydia is married to Wickham. Mrs Bennet’s recovery is instantaneous- she leaps out of bed, with not a thought for her poor nerves, or for her daughter’s real disgrace in having lived with a man outside marriage, and- though she has spent two weeks in bed being waited on- she joins her family at dinner again in- the phrase is memorably acid- “in spirits oppressively high.”

In low or high spirits, Mrs Bennet isn’t given a chance to appeal to the reader. In a move that seems very characteristic of the discussion in the period about nervous complaints, her faults are seen as moral and not physical, and so her “nerves”- which in other fictional females are proof of sensitivity and sensibility- are merely mocked.

Also mocked, though perhaps more subtly, in the much later novel *Persuasion*, are the illnesses

of the young housewife Mary Musgrove- one of the great comic hypochondriacs. *Persuasion* follows the progress of Anne Elliot, at 27 Jane Austen's oldest heroine, who has years before been persuaded to break off the engagement to the love of her life, the sailor Capt Wentworth, who meets him again and after a series of accidents- and I mean accidents; this is the novel in which two life endangering falls occur- is reunited with him. At the novel's outset Anne is presented to the reader as having recognised her mistake and suffering as a consequence from "loss of spirits and loss of bloom", a kind of gentle depression. She often sighs; she is often "agitated". But there is no talk of nerves and, indeed, though unloved and unrecognised in her family and exploited by everyone, she has much to complain of- little complaint of any kind. Any complaint from Anne would go unheard, anyway, in the general clamour that surrounds her; the novel's early chapters take her on a visit to her sister Mary. Mary is ill. Mary is often ill.

While well and happy and properly attended to, she had great good humour and excellent spirits; but any indisposition sunk her completely... She was now lying on the faded sofa... and on Anne's appearing, greeted her with: 'So you are come at last! I began to think I should never see you. I am so ill I can hardly speak. I have not seen a creature this morning' I am so sorry to find you unwell' Anne replied. 'You sent me such a good account of yourself on Thursday' 'Yes, I made the best of it; I always do; but I was very far from well at the time; and I do not think I was ever so ill in my life as I have been all this morning- very unfit to be alone, I am sure. Suppose I were to be seized all of a sudden in some dreadful way, and not able to ring the bell!...' 'Well you will be better soon' replied Anne cheerfully. 'You know I always cure you when I come'

Anne's hopes are not misplaced: within minutes Mary is scoffing cold meat and making plans for an afternoon walk. Part of what she needs is- like Mrs Bennet- simply company. Someone to listen to her complaints, to "attend" to them. The word "attend" appears over and over in Jane Austen, with regard to the real- Marianne's fever- and the imaginary complaint: Mrs Bennet, Mary. Some characters- mostly, but not always, women- have the capacity to supply this kind of attendance.

And some, to observe it. Though Anne spends much of her time coping with Mary's phantom illnesses, "My sore throats, you know, are always worse than anyone else's", on two occasions she has the opportunity to attend to the needs of someone who is really ill; in both these cases we see her sterling qualities- tender, resolute, clear-thinking as well as quick-thinking- and it not only the reader who sees this, but Capt Wentworth, once her fiancé, now returned, wealthy, successful, still eligible, but determined to ignore the woman who spurned him. He flirts with other young women and scarcely acknowledges Anne's existence. But on one signal occasion- after a fall, one of Anne's little nephews, one of Mary's two badly brought up little boys, is confined to bed with a broken collar bone. Anne offers to nurse him, much to Mary's relief, and on one occasion Capt Wentworth, Anne and the little invalid are left alone together. Anne is kneeling at the little boy's side, Capt Wentworth is pretending to read a newspaper and wondering how he can get away without being rude; a tense silence ensues, broken only by the entrance of the younger child, who begins bullying and pestering his long-suffering aunt:

"...as his aunt would not let him tease his sick brother, he began to fasten himself upon her, as she knelt, in such a way that... She could not shake him off...'Walter' said she, 'get down this moment'... But not a bit did Walter stir. In another moment, however, she found herself in the state of being released from him; someone was taking him from her, though he had bent her head so much, that his little sturdy hands were unfastened from around her neck, and he was resolutely borne away, before she knew that Capt Wentworth had done it"

This is the beginning of the transformation in their relationship; the man who has never stopped loving her- but does not know himself well enough to know that- cannot bear to see her made physically uncomfortable, in particular while she is wholly absorbed in the sort of physical care for others that is characteristic of her. His tenderness approves and supports and joins with

hers there. It is a kind of silent duet enmeshed in care for others. She nurses one child, while he plays with the other. They might already be married; though it takes many chapters, and one more accident and emergency event, before they are.

The second and more famous fall in *Persuasion*, is of course the fall at Lyme, when Louisa Musgrove, the young woman with whom Capt Wentworth has been flirting, insists on being jumped down the steps of the famous Cobb:

“... to shew her enjoyment, she ran down up the steps to be jumped down them again. He advised her against it... but no, he reasoned, he talked, in vain; she smiled and said ‘I am determined I will’: he put out his hands; she was too precipitate by half a second, she fell on to the pavement of the Lower Cobb, and was taken up lifeless!”

For those who haven’t read *Persuasion*, Louisa is not dead- despite her propensity for writing about falls, Jane Austen never kills anyone that way. But she is badly hurt- concussed certainly, and seems to remain unconscious for a worryingly long time; worrying too, to modern readers, is the way in which the injured girl is hoisted about and flung from person to person before she is examined by a surgeon and declared to have no broken limbs or injury to the spine. What this incident does- aside from putting Louisa out of action- is to show very completely the wonderful competence of Anne; there are two other ladies present, Mary and Louisa’s sister Henrietta, but they succumb, respectively to hysterics and a dead faint: it is Anne who has smelling salts to revive those who have fainted, Anne who thinks of the surgeon and of sending someone for him who knows the town, Anne who organises the party that carries Louisa from the scene. She rallies Capt Wentworth and they manage together to get Louisa indoors, where she can be examined and where the nursing can begin. Anne too, though she has every reason to resent Louisa as a rival, is willing to remain in Lyme and help nurse her –“*she would have attended on Louisa with a zeal among the common claims of regard, for his sake...*”- but is prevented, predictably by Mary, who cannot bear to lose such an opportunity for attention. Anne returns home against her will, and goes unwillingly to Bath- like Lyme a resort famous for invalids and medical treatments. The novel’s action follows her there and we never really see Louisa again; we learn of her recovery, but also that the effects of her accident will be lifelong: she will marry someone she meets in the house where she is being nursed, a sensitive young sailor who has helped to ‘attend’ to her and she will be turned, through the accident and its effects, from a bright and breezy young woman to one who “starts and wriggles like a young dabchick”, at any sudden noise.

The noise that is referred to here is a slammed door- and readers of *Emma* will recall that much effort is expended throughout the novel to shut doors- and to shut them properly. Maids are praised for knowing just how to do this, eligible young men are frowned on for not knowing- or not caring.

All of this watchfulness about doors is part of the symphony of care that surrounds Mr Woodhouse, Emma’s father, Jane Austen’s most celebrated hypochondriac. Like Mrs Bennet, Mr Woodhouse is nervous, “*a nervous man, whose spirits required support*” but unlike her, he is very rich, so his wobbly spirits are supported by almost everyone with whom he comes into contact, an army of servants, his neighbours, the apothecary, Mr Perry and most of all Emma, his devoted daughter. Mr Woodhouse is distressed not only by slamming doors but by draughty passages, sudden snowstorms, late nights, loud voices, strangers, travel, heat, cold, rich food, whether eaten by him or by others, and any change at all in his routine. But against all of these, perceived by him not as dangers to his equanimity but to his health, he is protected.

Emma perhaps comes next to *Pride and Prejudice* in popularity with readers. Emma is 21, “handsome, clever and rich”, and loves having her own way. At the novel’s opening she is suffering the loss of her lifelong companion, the governess Miss Taylor, who has left to be married; she has moved only half a mile away, but as a wife, as Mrs Weston, she will have other claims on her. Emma turns for companionship to Harriet Smith, a naïve 17 year old, a cross between a protégé and a plaything, who feeds Emma’s vanity and for whom she starts a series of disastrous matchmaking schemes, much to the disapproval of Mr Knightley, their bachelor neighbour, quickly recognised by the reader to be in love with Emma. It takes clever Emma 450 pages to

come to the same conclusion, by which time she has got herself and Harriet into one scrape after another, flirted dangerously with a young man called Frank Churchill (the one who does not know how to shut doors properly) who is secretly engaged to Jane Fairfax, a young woman Emma dislikes. *Emma* has more plot than Austen's other novels and less movement. All of the rather complicated action takes place within a few miles of Highbury, Emma's native village. Over the course of the action, Emma makes many mistakes and learns a little, for some readers not enough, humility.

Because Emma is so clever and thinks herself so clever, one of the reader's pleasures is a tender sort of mockery. We watch her observing others with acuteness and intelligence, yet frequently missing the main point of an event. Early on, the reader realizes that Emma and Mr Knightley are made for each other as they co-manage her father's nervous symptoms. Mr Woodhouse is not really ill, but it is everyone's job to prevent his ever becoming ill, or even feeling more than momentarily uncomfortable.

This is Emma's life: on the night after Miss Taylor's wedding, she is gloomily surveying her prospects for the coming winter; her father has, as is typical, fallen asleep after dinner. The pace of their life is torpid, their social circle is very confined, but with Miss Taylor's company this was tolerable. What will it be like without her, she is wondering and, as if in answer, in walks Mr Knightley.

He knows they will be missing their companion and refers delicately to the wedding. Mr Woodhouse wakes up for long enough to reply "*Ah Miss Taylor! 'Tis a sad business.*" A glass half full person himself, Mr Knightley comments that now Mrs Weston, he firmly uses her married name, "*will only have one to please rather than two.*" Emma takes up the baton:

"'Especially when one of those two is such a fanciful, troublesome creature', said Emma playfully, 'That is... what you would certainly say if my father were not by' 'I believe it is very true, my dear, indeed' said Mr Woodhouse with a sigh, 'I am afraid I am sometimes very fanciful and troublesome'

My dearest papa! You did not suppose I could mean you, or suppose Mr Knightley to mean you. What a horrible idea. Oh no! I meant only myself. Mr Knightley loves to find fault with me, you know... we always say what we like to one another' Emma knows I never flatter her' said Mr Knightley; 'but I meant no reflection on anybody...'

He says this drily and drolly and the situation is, between Mr Knightley and Emma, rescued, like many other situations in the novel. No-one can say "*what they like*" to Mr Woodhouse, but these two can say what they like near him, around him, in a sort of continual flow of tactfulness. There are half a dozen scenes like this, presented in a comic-opera style in which Emma soothes her father from one side while Mr Knightley distracts him from the other.

This is the sort of attendance Mr Woodhouse's unhysterical, unless threatened, and uncomplaining, unless dissatisfied, hypochondria requires from the laity: a constant quiet attention to his state of mind that takes the form of almost ritually dull conversation, pleasant for Mr Woodhouse, exhausting, I should think, for others, often hilarious for the reader. These rituals, sometimes expanded to include board games, are all that he requires in terms of family care. For Mr Woodhouse, unlike other Austen characters, whether ill or imagining themselves ill, has constant professional attendance in the shape of the apothecary, Mr Perry.

We remember that Jane Austen - when genuinely ill- moved from apothecary to surgeon, from small village to major town. Mr Woodhouse, "a nervous man, easily depressed" and a rich man, well protected, needn't do this. He has Mr Perry at his right hand. Mr Perry never actually speaks in the novel, he doesn't need to, as other characters are continually quoting him, or seeing him, or mentioning him in their letters. Unlike Emma, the great Miss Woodhouse, whose status in the village is so high and sense of her position so acute, that she can't enter certain houses without mulling over the consequences, Mr Perry is comfortable everywhere. He goes to the houses of the poor, where, it is intimated, he does not charge- but then perhaps he doesn't need to, as he sees Mr Woodhouse, presumably for a fat fee, every day.

One person who does not consult Mr Perry on her own behalf is Emma. Emma is the picture of health, as her former governess tells Mr Knightley. But she is almost alone among Highbury's

female population in being so. Harriet, her weak-headed friend, has in the course of the novel a septic throat, a turned ankle, several headaches... and a toothache which finally causes her to exit from its pages. Jane Fairfax, a young woman who is exactly Emma's age, and who like her, is beautiful and intelligent, but who unlike her, is poor, and is enduring the strain of a secret engagement, suffers from a number of complaints including headache, lack of appetite, 'deranged' spirits and a cold that lasts from November to June. Jane Fairfax sees plenty of Mr Perry. But it is not Mr Perry who cures her; in the novel's last quarter, Jane's prospects change, and her health changes with them, as Frank Churchill is suddenly free to marry her and their scandalously secret engagement can be openly acknowledged. The pale drawn young woman whose family feared she might be consumptive has a full recovery, even that nagging cold seems to be gone. The new situation, intriguingly, is due to the death of Frank's aunt, Mrs Churchill, another chronic invalid, who enters the novel only by reputation, as someone who suffers from a 'nervous complaint', but dies of something else altogether, a mysterious 'sudden seizure of a different nature.' Mr Woodhouse, who has the professional invalid's generous interest in others' ills, is filled with sympathy, but he is in a minority, as her death is so convenient. In Jane Austen, some illnesses are more equal than others.

As I have said, Jane Austen is a novelist of courtship; but in there is very little in the way of courting. Emma thinks she is being courted by Frank Churchill, but isn't. She drives away the decent man who wants to court Harriet and points her in the direction of two men who don't want to court her. When she finally comes to terms with Mr Knightley, there is no courtship, only love. A love that has grown up between them while they attended together to her father's imaginary illness.

In the other novels that I have discussed, too, there is less conventional courtship than might be supposed from the book jacket blurbs. And more illness, real and imagined. I'd like to end where we began with Jane Austen's yielding of the sofa to her mother: "*if I showed any inclination to lie on it, she said, "my mother would not take it even when she needed it"*". There is more going on here, I'd suggest, than simply the older woman's selfishness, the younger's disdain. More reticence. More love. And we should not forget her courtly thinking of her physician, either, almost her last words. Jane Austen was certainly a novelist of passion, but she was also a novelist of tenderness, and an observer of self delusion: for her there is as much loving-kindness and as much foolishness, between the sick and the well, as there is between men and women in love.

FRANZ BERWALD, SWEDISH COMPOSER AND ORTHOPAEDIC PRACTITIONER

A number of doctors have turned to novel writing as a career, (Somerset Maugham, Conan Doyle, Chekov), but few, if any, have made a name for themselves as musical composers. Although Alexander Borodin qualified as a doctor he never practised. His day job was professor of chemistry at Moscow University but his music outshines his chemistry by a long way. One person who did combine a musical career with a paramedical practice is the little-known Swedish composer Franz Berwald. He never formally qualified as a doctor but his orthopaedic clinic was, by his own assessment and that of his peers, a great success. As a composer he deserves to be better known but his claims for the value of his remedial exercises were overstated.

Franz Berwald was born in Stockholm in 1796 to a musical family of German origin. His grandfather, Johann Friedrich Berwald, was a flautist in the Mecklenburg Schwerin court orchestra. He married four times and had 21 children but only 11 survived childhood. One of them, Christian Friedrich Georg, became a violinist and, in 1772, settled in Stockholm where he became a member of the court orchestra. It is thought he gave lessons to his son Franz, who quickly established himself as a gifted violinist and played for many years as a member of the same orchestra as his father. Although successful as a string player his ambition was to be a composer and in the period 1818 -1837 he produced a number of fairly large scale works, many of which have not survived. Some pieces were well-received, others were not; none brought him fame and fortune. He also published a musical journal (Musikalsk journal) with songs and

easy piano pieces intended for amateurs. At that time Stockholm was something of a cultural backwater and the action was in Germany, Italy and France. For this reason, and because of some unflattering reviews, Berwald left Stockholm for Berlin on 29 May 1829, his mind much occupied with plans for an opera. There were members of the Berwald family there and they helped him settle but were unable to assist in his musical aspirations. Sadly, the musical establishment in Berlin was as unreceptive as that in Stockholm to his radical style of composing. His financial position became so desperate that he had to find alternative employment.

As a young man in Stockholm he had attended a gymnasium for classes in what became known as Swedish exercises. Doing these exercises became a vogue, rather like the vogue in Britain for aerobic exercises during the 1980s. However the gymnastic classes were, for the most part, limited to young men. The gymnastics movement had been started somewhat earlier in Germany by Johann Friedrich GutsMuths and developed greatly under the leadership of Friedrich Ludwig Jahn. It was consciously highly militaristic and was linked, in a somewhat curious way, with the assertion of Nordic identity. Significantly it involved the use of many pieces of apparatus such as parallel bars, beams and vaulting horses. As an alternative to German gymnastics, the Swede Per Henrik Ling took rather a different approach. The militaristic aspect was played down and, significantly, no apparatus was used; the exercises were rather like a PT class at school. Later the exercises regime became more dance-like, akin to a session of the Women's League of Health and Beauty, now called the Fitness League.

Per Henrik Ling was born in Lund in Sweden in 1766 and became a fencing master. He then moved to Copenhagen but little is known of this part of his life. At some stage he devised a system of apparatus-free exercises based, to some extent, on his prowess as a fencer. In 1813 he moved to Stockholm and there, at the Central Gymnasium, he launched his system of exercises with the idea of developing a rejuvenated body and a pure mind. In later life he became somewhat eccentric and embraced the idea of a Nordic super race and he was eventually banned from public life in Stockholm. However his system of exercises became well-established in a number of countries outside Sweden and was hugely popular.

The idea of self-improvement by exercise appealed to Victorians and one of Ling's disciples, M Roth, opened a gymnasium in Cavendish Square. In 1855 Dr Roth published a book describing his system and assured his readers that 'gymnastics and Russian baths would empty the workhouses'. More significantly, in view of what Berwald was to assert, Roth claimed that Ling's system of exercises could correct some of the orthopaedic deformities that blighted the lives of Victorians, particularly Victorian children. Roth also warned of the harm done by women to themselves by the fashionable constricting foundation garments. Some of Roth's illustrations indicate the form the exercises took.

In 1835 in Berlin Berwald established an institute for treating children with deformities by a regime of remedial exercises based on Ling's system. Some children came daily, others lived in and he supervised the daily routine; his greatest success appears to have been in the correction of scoliosis. He seems to have been a compassionate man and the regimen of the clinic appears not to have been unduly harsh by the standards of the time. To care for the residential children he recruited an able, if rather uneducated, peasant girl called Mathilde Scherer who made a great success of her position. The inevitable happened. They fell in love, became engaged and eventually married in 1841. The marriage was highly successful and Mathilde provided unquestioning support to her husband in all his endeavours.

Berwald was very innovative with regard to the children's treatment. Over the years, he designed and constructed various pieces of equipment that he hoped would help correct the deformities. We know much about the equipment because, when he sold the clinic, he made drawings of the pieces of apparatus that have survived and are now in the archives of the Royal Academy of Music in Stockholm. The drawings have faded and are badly blemished but, with the aid of modern computer technology, it is possible to restore them to their original state. Some of the pieces of apparatus look rather brutal, others more gentle but it is unlikely that any of them really had much benefit in the correction of scoliosis. The figure in the drawings looks suspiciously like Berwald's long-suffering wife Mathilde. How far the drawings were instrumental in selling the clinic history does not record.

Scoliosis was first described by Galen and was, in the Middle Ages, associated with evil. Today

it is treated with exercise and traction but most effectively with surgery. Such surgery was not available until the 20th century and, in Berwald's time, traction was little understood. Thus exercise was all the medical profession could offer and, even if not particularly effective, it did no harm and gave some hope to the sufferers. Although he founded the clinic to salvage his financial position he took the treatment of his patients very seriously. He wrote to his sisters:

You have perhaps already heard that here in Berlin to the great surprise of most prominent doctors, using a method which I invented myself and a large number of associated mechanical instruments, I have been able to cure (or treat) deformed bones.

In spite of this feeling of success he was not satisfied. During most of his time in Berlin he had composed no music at all as the clinic had consumed all his energy but the desire to compose had not left him and by 1841 he could no longer resist the call of musical composition. The clinic was put on the market and he, with his new wife, moved to Vienna where he began composing again.

The time in Vienna was short for, in 1842, he returned to Stockholm where he wrote four symphonies as well as a number of other works. Any works performed in public were not received by the critics with enthusiasm. There was one public performance of a symphony, (*the Sinfonie sérieuse*), in 1843. It received appalling reviews and was described by the critic of *Nya dagligt allehanda* as 'incomprehensible'. Listening to them today, this reaction is difficult to understand for the work is elegant, melodious and tasteful. Many of his works remind the listener of Mendelssohn, although Berwald predates Mendelssohn (1809-1847) by some years. He was more successful as a conductor (his activities were faithfully recorded by his wife in her *Dagbok*) but the remuneration was not enough to keep his family in reasonable circumstances and, from 1850-1858 during the winter months, he managed a glass factory at Sandö for a music-loving owner. He spent the summers in Stockholm trying to make an impact on the musical scene with only modest success. From 1860-1861 he managed a tile factory in Stockholm. He appears to have been a successful business man but fame as a composer eluded him. However, towards the end of his life his music gained some following amongst the concert-going public but three of his symphonies were never performed in public in his lifetime. He made no attempt to further his career as an orthopaedic practitioner. He died in 1868.

In the 20th century there was an attempt to revive his works in the concert hall and in 1905 the Swedish composer Tor Aulin conducted the first public performance of what is now considered his finest work, the *Sinfonie singulière*. It is a delightful work and now has a modest place in the concert repertoire, particularly in Scandinavia. It was performed by the Swedish Radio Symphony Orchestra at the Edinburgh International Festival. It was not until 1946 (the 150th anniversary of his birth) that Berwald's opera *Estrella de Soria* received its first full public performance in Stockholm. Nearly all his works have been recorded, some by major conductors, but Berwald has not yet received the musical recognition he deserves. On the other hand, it is thought that some of the pieces of equipment designed for his Berlin clinic were copied by others and may have made a small contribution to the welfare of those suffering from scoliosis and like conditions, but modern surgery has made remedial exercises of small importance.

During Dr Butler's talk extracts from four of Berwald's compositions were played: Violin Concerto, *Battle of Leipzig*, *Septet* and *Sinfonie singulière*.

This paper brought the 2006-2007 session of the Society to a successful end.

The Scottish Society of the History of Medicine

REPORT OF PROCEEDINGS SESSION 2007-2008

THE FIFTY NINTH ANNUAL GENERAL MEETING

The Fifty Ninth Annual General Meeting was held at the Edinburgh Academy on 20th October 2007. The President, Dr Bryan Ashworth, was in the chair. The Secretary, Dr Nigel Malcolm-Smith, presented his report and the Treasurer, Dr Morrice McCrae, presented the Treasurer's report which was accepted. Dr Ashworth handed over the chain of office to the incoming President, Mr Roy Miller. Dr David Boyd was elected as Vice President. Dr Keith Mills and Professor Tony Wildsmith were elected as new council members.

THE ONE HUNDRED AND SEVENTY NINTH ORDINARY MEETING

The One Hundred and Seventy Ninth Ordinary Meeting of the Society took place at the Edinburgh Academy on 20th October 2007 and followed the Fifty Ninth Annual General Meeting. Two speakers gave papers, the first, by Dr Glenys McLaren, was on Richard Gill, the Medieval Baron and the second, by Dr Niall MacGillivray, was entitled Typhus, Relapsing Fever and Typhoid- Their History and How They Were Differentiated From the Other.

THE MEDIAEVAL BARON THE STORY OF RICHARD GILL AND CURARE

Richard Gill was the first person to bring a sufficient quantity of curare, the muscle relaxant, back from the Amazonian jungle for it to be analysed scientifically.

Most of the older generation of anaesthetists practising today will recall having used this drug to provide abdominal relaxation for surgery. By the late seventies it had had its heyday and had been replaced by newer, cleaner drugs with fewer side effects. Despite providing good muscle relaxation, curare released histamine, producing unwanted vasodilatation and tachycardia.

Curare is commonly known as the arrow poison, but it was only one of many such agents. Neuwinger analysed over 260 arrow poisons and pointed out that there were three cultures that used poisoned arrows to catch prey : these were hunter-gatherers of South America, Africa and Indonesia (H D Neuwinger, "Alkaloids in Arrow Poisons", from "Alkaloids, biochemistry, ecology and medical applications", M F Roberts & M Wink)

It was only in South America that curare was used. There, its use was widespread throughout the Amazon basin and its tributaries, and westwards to the foothills of the Andes.

The choice of poison was crucial as it was fairly prey specific. It had to kill or at least immobilise the prey quickly, so that the animal did not have the opportunity to flee. Importantly, it could not poison the meat for human consumption or taint its flavour. It was prepared as a result of intelligent plant gathering and complex ritual, resulting in the production of a black tarry substance that could be smeared on arrow points. It was known as the flying death and its name was said to be derived from the Tupi Indian words meaning bird and to kill.

The plant from which the active ingredient, curare, was obtained was *Chondodendron tomentosum*, or Pareira, the wild grape.

The formula for curare is now known and it has been shown to contain quaternary ammonium groupings which prevent the compound being absorbed from the gut if ingested or crossing the blood brain barrier if it enters the bloodstream.

In curare's long history, it has been associated with a number of illustrious names from the past. Chronologically and in brief, we don't know when South America was first populated, but it was

at least 12,000 years ago and may have been as many as 35,000 years ago. During this time the indigenous population developed the use of curare as a poison. It was not recorded in the West, however until its use was observed by a Spanish conquistador in 1540. Sir Walter Raleigh was reputed to be the first to bring the substance to England. Alexander von Humboldt first described its preparation and Charles Waterton demonstrated how it could be used. Fortunately his donkey, Wouralia, survived the ordeal, her lungs being ventilated by a bellows inserted into her trachea until she recovered from paralysis. Claude Bernard showed that it worked on the neuro-muscular junction and this work was elaborated by Sir Benjamin Brodie. By the nineteen thirties, Ranyard West in Britain and Michael Burman in USA were experimenting with curare to alleviate the problems of extra-pyramidal spasticity and parathyroid tetany.

It was at this stage that Richard Gill entered the story, sadly in pursuit of a remedy for his own physical affliction.

He was born in America in 1901, into a medical family. He studied Arts at university and became an English teacher. 1929 was the year of the Great Crash in America and it altered Richards' life forever. He was then a young man of 28 and newly married to his lifelong companion Ruth. Land was cheap in South America and the US government in the wake of the crash was offering grants to citizens to set up ranches to grow coffee, castor oil and fruit. Richard and Ruth took up this opportunity and bought land in Ecuador on the eastern slopes of the Andes, looking out over the Amazon basin. Their land stood on the Rio Pastaza and was reached along the Pastaza Trail.

Richard later gave an account of setting up the ranch, in which he likened himself to a mediaeval baron. He was lord of the manor and of all he surveyed. The indigenous labourers lived and worked on his land as though in a feudal system, performing all the duties typical of a small baronial estate. The ranch was a substantial building made of the finest tropical hardwood. Planks were purchased at \$2.50 per 100. Richard could not believe how cheaply their lifestyle was achieved and they lived well despite a modest budget. Ruth had all the furniture made on site with illustrations from magazines she had brought with her as the guide for the native carpenter who faithfully reproduced them. They were hosts to all who travelled the Pastaza Trail; natives, adventurers, treasure hunters, film crews, scientists and fugitives from justice. They would dress for dinner, have cocktails, eat by candlelight and were waited on by servants.

Richard was fascinated by the shy natives who lived in the rainforest around him. They were rumoured to be dangerous, aggressive head-hunters and cannibals. He gradually befriended them and earned their trust. They shared with him their way of life, the food they ate, the plants they used and their artefacts. Richards' collection of artefacts and his papers constitute an important archive of a way of life that is rapidly disappearing from our planet. Many of the items were elaborate ceremonial garments of feathers, iridescent insect wings, seeds, bone and human hair. Richard and Ruth's happiness in this paradise was not to last. Richard became ill, dating the onset from a fall from his normally docile horse Chugo. Fortunately, they were about to embark on a trip back to America. While in America, Richard became progressively disabled. Episodes of clumsiness and tightness around the diaphragm progressed to right-sided paralysis. Two years later and still in America he was paralysed from the neck down and described himself as a head lying on a pillow.

The neurologist he was seeing was very supportive but admitted that nothing could be done other than rest, physiotherapy, diet and vitamins. It is unclear what he was suffering from but it was thought that it might have been multiple sclerosis. Slowly he began to recover. He had to relearn feeding himself, dressing and walking and he was plagued by spasms. The neurologist mentioned that these might be helped by curare but that research on its use was hampered by lack of an adequate supply. Richard not only knew of the substance but had watched the natives prepare it.

Richard saw the potential of a cure for his own problems, albeit an erroneous one, a chance to return to his beloved jungle, and an opportunity to make some badly needed money. It was 4 years before he recovered sufficiently to return to Ecuador and he still needed a stick for walking. He organised the Gill-Merrill expedition of 1935 to collect curare. Merrill was a wealthy businessman who funded but did not join the trip. Richard and Ruth were accompanied by a senior field man, his assistant, 2 camp assistants, 70 porters, 36 mules, 6 horses, 12 canoes and crew and 2 tons of equipment. Travel was difficult and slow. The ranch had been reclaimed by the jungle in their absence. From the ranch to the territory of the Canelos Indians took 20 days and they then lived

with them for 4 months collecting samples. Richard tried to separate the essentials of manufacture from the myth and magic. The ingredients were identified, dried and labelled for further analysis. In Richard's book "White Water and Black Magic" he gave a detailed account of how a native male would prepare himself to make curare. He would fast, abstain from sex and alcohol. After collecting the ingredients he would make a fire in a concealed place away from the village. Breaking the rules would diminish the potency of the product, especially if women came near. The mixture was boiled for two days to reach a tarry consistency and was then stored in tubes, pots or gourds ready for testing.

The expedition brought back 25lbs of curare to America, enabling its main and secondary constituents to be differentiated, Squibb was the company involved. Richard hoped to set up a commercial venture whereby he would continue to supply the raw product for extraction. Alas, much of the batch was severely deficient in active ingredient and Squibb were quick to realise that synthetic production was the way forward. It was marketed as Intocostrin.

A psychiatrist, Abram Bennet of Nebraska, started using curare for electro-convulsive therapy. This immediately decreased to zero the previously high incidence of stress fractures seen with this procedure. By 1942, Harold Griffith in Canada had established its use as a muscle relaxant to facilitate abdominal surgery. He wrote to Richard Gill in 1943, "I believe that your work with curare has been a great contribution to modern medicine. I should like to express the very great appreciation of our surgeons, anaesthetists and patients for the very useful work you have done in making the drug available to us".

Latterly, Richard made his home in Palo Alto, California, and developed a laboratory in his garage. He produced a range of medicaments and cosmetics such as shampoo and depilatories based on plants from the jungle. Alas, it was an idea whose time had not yet come. His disease slowly progressed, causing his death at the age of 58.

The Arthur Guedel Memorial Library in San Francisco was the source of much of this lecture material. Gill's artefacts and papers were bequeathed to them by Ruth after his death.

After the lecture, a demonstration was given of the use of arrows and a blowpipe, brought back from Indonesia by Dr Bruce Scott to the department of Anaesthesia in the Royal Infirmary of Edinburgh. A copy of an early advertisement for curare from the nineteen fifties was also shown.

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FEVER AND THE HISTORY OF ITS CLARIFICATION.

Introduction

Until the middle of the nineteenth century the three infectious diseases, typhus, relapsing fever and typhoid fever were referred to simply as fever or continued fever. There were other descriptive terms in use such as gaol fever, ship fever, camp fever, spotted fever but, the name

spotted fever apart, these were not descriptive of the disease itself, being more often indicative of the circumstances in which the epidemic occurred. This paper examines how physicians in several countries over a period of decades discovered the true nature of fever.

Physicians during the late eighteenth and early nineteenth centuries looked on continued fever as a disease which assumed various forms depending on individual susceptibility and the prevailing epidemic constitution of the atmosphere.¹ The idea of an epidemic constitution was suggested by Thomas Sydenham (1624–1689) in the seventeenth century. Sydenham had been impressed by the influence of the weather and seasons on epidemic disease in London; one historian believes that at this time England was invaded by falciparum malaria which ‘imposed on the occurrence of fevers a regular pattern that followed the succession of the seasons’.² Sydenham’s first book (1666) revealed that the author was looking for a cure for fever and ‘while he recognised some differences and variations among fevers’ he did not seem to have been impressed by these; ten years later his studies convinced him of the significant differences in various fevers and his recognition of these differences and the need to explain them led Sydenham to his theory of the epidemic constitution.³

The historiography of the three diseases is extensive and many distinguished historians have examined what Wilson described as ‘the great questions at the heart of medicine...’, and writing on ‘Fever and Science in Early Nineteenth Century Medicine’, he commented that:

In the nineteenth century by far the most common and most deadly group of diseases were the fevers. Fever was itself considered a disease that might vary in its appearance and behaviour, but which possessed an underlying unity. The great questions at the heart of medicine were: what was the nature of fever?’ and how should fevers be treated?’⁴

Adam Patrick, Professor of Medicine at the University of St Andrews, in a monograph on the history of the enteric fevers wrote: ‘in the year 1800 ... there was no general recognition of more than one kind of fever. In particular, no clear distinction had been made between typhus and typhoid, the so called putrid malignant and the slow nervous fever...’. The work of men such as Huxham and Pringle which will be discussed below had been forgotten or ignored as being irrelevant. That fever at this time occupied the minds of doctors more than any other disease was undoubtedly the case but it was not solely in the minds of the medical profession that fever was predominant: nineteenth century novelists were well aware of the importance of fever. Patrick quoted lines from *Middlemarch* by George Eliot in which the author has Mrs Casaubon say of Dr Lydgate: “what he really cared for was ... a good hospital where he could demonstrate the specific distinctions of fever ...”⁵

Fever in Britain in the Eighteenth and Nineteenth Centuries

Fever epidemics in the late eighteenth and early nineteenth centuries were so common that a Scottish medical historian could claim with good reason that it was ‘not too much to say that fever dominated Scottish life in the first half of the nineteenth century.’⁶ There is ample evidence from primary sources to confirm this assertion. For example the records of the Royal Infirmary of Edinburgh show that in a twelve month period from October 1837 2,244 patients were admitted with fever, with many more being turned away because of a shortage of beds. The Edinburgh Lock Hospital in Surgeons’ Square was opened to accommodate fever patients but was considered ill adapted for their treatment: ‘all the gentlemen who went to reside there as clerks took the fever and Dr John Home and two of the clerks died.’⁷ Ferguson states that between 1833 and 1839 in Dundee 11,808 cases of fever were recorded and in the five years from 1835 to 1839 the number of cases treated in the Aberdeen Infirmary and Dispensary totalled 5,187.⁸ These figures reveal how common fever was in Scotland at this time but evidence from the eighteenth century suggests that it was not until the nineteenth century that fever assumed epidemic proportions - Ferguson quotes Dr Ebenezer Gilchrist (1707–1774) of Dumfries who in 1735 described a fever affecting the poor⁹ and says that in the same year Edinburgh was affected by a fever which Ferguson thought was relapsing fever.¹⁰ Neither of these epidemics seems to have been as severe and widespread as later outbreaks. The epidemics may have been less disastrous but eighteenth century physicians, like

their successors in the nineteenth century, wrote detailed accounts of their experiences of fever and made distinctions between different kinds of fever.

The Eighteenth Century

John Huxham (1692–1768), a Devon physician who had studied at Leyden with Boerhaave, published in 1750 an essay on fevers in which he distinguished on clinical grounds slow nervous fever from putrid, malignant and spotted fever.¹¹ Another seventeenth century physician, James Pringle, later Sir James (1707–1782), also in 1750 published his observations on the nature of hospital and jail fevers and in a later work on the diseases of soldiers in camp and garrison reached the same conclusions as had Huxham.¹² He used similar terms to Huxham when referring to ‘distempers [are] of a putrid kind’ and the presence of an ‘uncommon stupor’ and described in detail the spots ‘which are the frequent but not inseparable attendants of the fever, in its worst state. They are of the petechial kind, of an obscure red colour, paler than the measles, not raised above the skin, of no regular shape, but confluent.’¹³ These contributions were significant and had a brief influence on medical thought but considerably less than the works of William Cullen (1710–90), professor of the theory and practice of medicine in the University of Edinburgh.

William Cullen

Cullen was perhaps the most influential physician in the English speaking world in the latter half of the eighteenth century. His impact on medical thought and practice came from two influential works: *Synopsis Nosologicae Methodicae* (1769) and *First Lines of the Practice of Physic* (4 volumes, 1776–1784); both remained in use and influenced medical practice for at least half a century. Cullen’s nosology owed much (as he acknowledged) to the nosologies of Boissier de Sauvages (1706–1767), Carl von Linné (Linnaeus) (1707–1778) and Rudolph Vogel (1724–1774) but had the great advantage of simplicity - and as Bynum points out it was ‘a pedagogical and heuristic rather than an essentialist nosology, a clinical guide rather than a theoretical system.’¹⁴ Cullen separated continued fevers into three *Genera*: *Synocha*, *Typhus* and *Synochus*. *Synocha* he defined as a simple inflammatory fever in which the body heat was much increased and the animal functions little disturbed; typhus, the putrid fever, was a contagious illness with delirium, stupor and great prostration of strength; *synochus* was a contagious mixed fever composed of *synocha* and typhus, at first a *synocha* and towards the end typhus.¹⁵ Cullen’s view of fever was entirely traditional in that he considered fever to be a general disease which might take many forms and at times show evidence of local inflammations in certain organs.

It is questionable as to whether the longevity of Cullen’s work and influence was entirely beneficial. Bynum’s claim that ‘Hippocrates and William Cullen were part of a common medical tradition, separated only by time during which theories of disease causation had hardly changed’ emphasises this point.¹⁶

Cullen’s influence was immense and prolonged. Thirty-nine years after his death a young Edinburgh physician, James Craufurd Gregory (1801–1832), the third son of James Gregory (1753–1821) who succeeded Cullen in the Edinburgh chair, edited in 1829 a new edition of Cullen’s *First Lines of the Practice of Physic* which included some new material whilst retaining the essential elements of the original work.¹⁷ In the appendix Gregory added ‘the most important facts which have been ascertained, and principles which have been adopted, in regard to the nature and treatment of disease since the death of the author’. There was remarkably little new material on fever or on the new theories from France although Gregory knew of the work of French physicians such as Francis Joseph Broussais (1772–1838) but was highly critical of Broussais’ theories, writing ‘however unsatisfactory it may seem to English physicians ... it is infinitely preferable to the current French doctrine.’¹⁸ The “current French doctrine” to which Gregory referred has been summarised by Ackerknecht who wrote that ‘through Broussais essentialism was buried ... the medicine of symptoms was transformed into the medicine of lesions.’¹⁹

Broussais and Prost

Broussais changed medical thought and theories of disease by theorising that diseases were caused by inflammatory lesions of specific organs, particularly the gastro-intestinal tract. Broussais served as a surgeon during the wars of 1793–1815, carrying out many post mortem

examinations; this experience led him to conclude that disease caused localised inflammations which in their turn produced discernable lesions, an example being continued fever which he believed was the result of gastric and intestinal inflammation and to which he gave the name gastroenteritis.

The recognition of the importance of post-mortem examination and its adoption by many physicians in Europe can be traced to the work of Giovanni Battista Morgagni (1682–1771), professor of anatomy at Padua, who in 1761 published *De sedibus et causis morborum*, in which he reported his findings in some seven hundred autopsies, correlating these with the recorded symptoms of the fatal illness.²⁰ Morgagni's work was taken up in London by the Scotsman, Matthew Baillie (1761–1823), a nephew of the brothers John and William Hunter, who published his work on morbid anatomy in 1793 in which he described the pathological states caused by disease.²¹ There were many other practitioners in Europe who were by the late eighteenth century 'already keenly focused on morbid anatomy as a way of correlating post mortem findings with ante-mortem diagnosis.'²²

The French physician, Prost, published in 1804 his two volume work, *Médecine éclairée par l'observation et l'ouverture des corps*, arguing that mucus, gastric and adynamic fevers originated in the mucous membrane of the intestines.²³ He described what he called a case of '*fièvre gastro-ataxique*' where he found ulcers in the mucous membrane of the ileum together with soft enlarged mesenteric glands.²⁴

Petit, Serres and Brettoneau

Prost's work was followed in 1813 by that of Marc-Antoine Petit and E.R.A Serres who, in a monograph on the disease which they called 'entéro-mésentérique' fever, described the characteristic lesions of the lymphatic glands in the wall of the small intestine.²⁵ They contended that this fever in its full development had two distinct groups of systems: those arising from the abdominal cavity and the rest from 'l'universalité du système'.

During the 1816 fever epidemic in Tours, Pierre Brettoneau (1778–1862) found that victims who died from continued fever had very distinctive lesions in the small intestine. So regularly were these found that he gave the disease the name of dothinentérite, meaning intestinal boils. Brettoneau did not publish his findings but reports of his work were brought to Paris by a former student, Armand Trousseau (1801–1867), who in 1826 published a paper entitled '*De la maladie à laquelle M. Brettoneau a donné le nom de dothinentérie ou dothinentérite*'.²⁶

Louis

Pierre Louis (1787–1872) graduated in Paris in 1813 and spent seven years practising in Russia, before returning to Paris in 1820 to carry out further study and research. A former fellow student, August Francois Chomel (1788–1856), by now a physician in La Charité hospital, gave Louis access to his wards. Chomel was at the time writing a treatise on continued fever and believed that the intestinal ulcerations which were frequently seen in cases of fever, (but not constantly), were an effect of fever, not its cause. Chomel published his findings in 1821.²⁷

Louis's research into fever occupied several years using what he called his numerical method before publishing his results, dedicated to M. Chomel, in 1829. His work was entitled *Recherches anatomiques, pathologiques et thérapeutic sur la maladie connue sous les noms de gastro-entérite, fièvre putride, adynamique, ataxique, typhoïde*. Louis's research involved the careful recording of signs and symptoms of each patient, correlating these numerically with the anatomical findings at post mortem. This was the basis of the numerical method employed in his study of some nine hundred patients and one hundred and thirty-three post mortems.²⁸ Typical of Louis's case reports was that of a nineteen year old mason of strong constitution admitted to La Charité with neckache, fatigue, loss of appetite, great thirst, diarrhoea and exhibiting rose coloured lenticular spots. The unfortunate young man did not recover and post mortem examination revealed a dozen elliptical plaques in the last part of the ileum.²⁹

At this stage Louis had not yet grasped the fact that the infection we now know to be typhus fever was entirely different to the typhoid fever he so clearly described in his paper. His findings, however, attracted widespread interest in Europe and abroad; prominent among his overseas students were William Gerhard and Caspar Pennock from Philadelphia and James Jackson Jr.,

from Boston. The three medical students became private pupils of Louis, enabling them to observe closely his methods and his work on the fever now known as typhoid fever.

Jackson and Gerhard

Jackson returned home to Boston in August 1833, arriving in the middle of a fever epidemic which he began to study using the methods developed by Louis. He found that the infection was in all respects (including the intestinal changes at post mortem) identical to that described by his teacher in Paris. Sadly Jackson himself caught fever and although he made a partial recovery, his health again broke down and he died aged twenty-four in March 1834.³⁰ The following year his father published a memoir which included extracts from letters written by his son and details of cases collected by him.³¹

William Wood Gerhard (1809–1872) travelled to Europe in 1831, first visiting Edinburgh where he met Dr James Craufurd Gregory and studied patients with epidemic fever under Gregory's care in the Royal Infirmary. He arrived in Paris later that year and as he 'possessed the advantage, unusual for an American student of being already fluent in French' it is likely that this was one of the factors which persuaded Louis to take the three American students as private pupils.³² On his return home Gerhard was appointed resident physician at the Pennsylvania Hospital in Philadelphia.³³ In 1835 he published in the *American Journal of Medical Science* an analysis of malignant remittent fever cases treated the previous year. In the course of his observations Gerhard described two fatal cases of "typhus fever" in which autopsy revealed that 'the alterations of the glands of Peyer were identical with those seen in the Parisian hospitals...'³⁴ The cases of malignant remittent fever enabled him to conclude that 'the anatomical character of remittent and intermittent fever is not the lesion of the glands of the small intestine ...' Gerhard had arrived at a new theory of continued fever, arguing in a report on the Philadelphia epidemic fever of 1836 that the matter was now resolved and that typhus fever and typhoid fever were two entirely distinct diseases. In approximately fifty autopsies carried out by Gerhard and his colleague, Dr Pennock, there was only one case in which there was 'the slightest deviation from the natural appearance of the glands of Peyer.'³⁵ Gerhard concluded: 'we shall hereafter inquire if the symptoms are equally distinct and characteristic in these fevers which, from an abuse of names, are so often confused with each other.'³⁶

Dale C Smith, in a wide ranging review of Gerhard's work and its reception in America, believes that by the early 1830s American physicians were becoming familiar with the ideas emanating from French workers such as Broussais and his successors but they were 'divided over the conclusions to be drawn from the pathology and even about the way in which the pathological evidence should be used.'³⁷ They persisted in their belief in the unitary character of fever despite the fact that Gerhard and others had established quite clearly 'that the common continued fever of the eastern United States, often called typhus by American practitioners, was the same disease as the typhoid of Louis.'³⁸ In Britain, physicians were confused by the fact that in the many descriptions of typhus by British authors changes in the small intestine were seldom seen at post mortem; it is plain Gerhard's evidence was not enough to persuade them that there were two forms of continued fever: typhus and typhoid.

Perry and Stewart

The confusion in the minds of British physicians is revealed by Dr Robert Perry (1783-1848) who in 1836 published in the *Edinburgh Medical and Surgical Journal* his findings on continued fever as it presented in the fever wards of the Royal Infirmary of Glasgow. In his summary of cases of dothinerteritis he claimed that enlargement and ulceration of the glands of the lower third of the ileum did occur in combination with contagious typhus, 'and are to be met with in about one in six of those who die from typhus.'³⁹ Perry described the skin eruption scattered over the trunk and limbs which by the sixth day of the illness became more generalised and more distinct; he differentiated this eruption from that which developed in typhus and appeared as petechiae. It is plain that Perry was describing both typhus and typhoid fevers but he was convinced that the two were simply different manifestations of typhus fever.

Perry's colleague, Dr Alexander Stewart (1813–1883), after graduating MD Glasgow in 1838, pursued further study in Paris and Berlin. He spoke French fluently and gave a paper to the Parisian Medical Society in April 1840 entitled 'Some considerations on the Nature and Pathology of Typhus and Typhoid Fever applied to the Solution of the Question of the Identity or Non-Identity of the two diseases', an address that was published in the *Edinburgh Medical and Surgical Journal* that same year. Stewart discussed in detail the rashes found in typhus and typhoid and explained that when Dr Peebles (John Home Peebles) returned to Scotland from Italy he showed Edinburgh doctors the constant rash found in fever. It seems that Edinburgh physicians and their Glasgow colleagues were totally unaware of it- 'prior to a visit by Peebles to the Glasgow Fever Hospital in 1835 the rash of typhus had neither been looked for nor registered.'⁴⁰

Henderson and Reid

In his paper Stewart quoted from the work of Dr John Reid (1809-1849) whose study of thirty-three cases of fever in Edinburgh revealed only two cases with the ileal lesions of typhoid, both deceased being labourers on the Edinburgh and Glasgow railway line.⁴¹ Dr Reid became the superintendent of the pathology department of the Edinburgh Royal Infirmary following the death of Dr John Home from typhus and in a paper jointly written with William Henderson (1811–1872) analysed the post mortem appearances of forty-seven fever victims finding only two where there were changes in the ileal Peyer's patches. Reid reviewed the late Dr Home's research in which seven of one hundred and one cases showed some degree of ulceration of the ileal patches and two were perforated. Reid concluded that intestinal lesions as described by Louis and Chomel were comparatively rare in Edinburgh but he did make the point that a colleague in Fife, Mr John Goodsir, had found the ileal lesions in ten cases of fever.⁴²

William Henderson graduated at Edinburgh in 1831 and the following year was appointed physician to the fever wards and pathologist to the Royal Infirmary, becoming professor of pathology in 1842.⁴³ His research and joint publications with John Reid were not his sole contributions to the literature on fever; of more lasting significance and interest was his paper 'On some of the Characters which distinguish the Fever at present Epidemic from Typhus Fever', an analysis of the Edinburgh fever epidemic of 1843.⁴⁴ Henderson focussed on the case of Isabella McDonald of 327 Canongate who was admitted to hospital in April 1843 with typhus fever showing, as Henderson put it, 'the usual exanthematous eruption.' Mrs McDonald recovered and was discharged home in May. Between then and July her mother and three of her sons developed typhus, one of the sons aged thirteen years dying in the fever ward. Henderson found that 'in the months of August, September and November the surviving five members of the family, who had been affected by typhus, were now seized with the epidemic fever, which was then abundant among the other families in the stair.' Physicians knew that an attack of typhus fever bestowed on the survivor a prolonged period of immunity, Henderson therefore reasoned that the second attack of fever which he called epidemic fever must differ from the first leading him to conclude on clinical and epidemiological grounds that there were two distinct diseases, typhus and epidemic fever, the latter we now know as relapsing fever.⁴⁵ Despite these papers from home and abroad the general view amongst British physicians remained unchanged: typhus and typhoid fevers were one disease since in their experience some fever patients at post mortem had the intestinal lesions of Peyer's patches but the majority did not.

Jenner

William Jenner (1815-98), later Sir William Jenner Bart., published the results of his research into fever at the London Hospital from 1847–49 writing 'it would be a great point gained towards the right understanding of the true value of the differences observed in cases known as continued fever, if the question could be positively answered - no matter whether in the affirmative or negative — as to the identity of typhus fevers'. He commented that 'with few exceptions, British physicians have laboured to prove that typhoid and typhus fevers are identical.' In a detailed analysis of sixty-six fatal cases of fever his conclusions were 'in opposition to the opinion of the principal writers on the subject of continued fever in this country...' but his results justified his assertion that 'they were essentially distinct diseases.'⁴⁶ Jenner demolished the arguments of those who claimed that 'typhoid fever is merely typhus fever modified by the prevailing epidemic

constitution' and concluded 'I think it is indisputably proved, that typhoid fever and typhus fever are equally distinct diseases' as were small pox and scarlet fever.⁴⁷

Conclusion

The differing social and economic conditions in France and Britain in the late eighteenth and early nineteenth centuries may explain the occurrence of different forms of fever and the medical responses in the two countries. As Graham Robb explains in a recent book on France: whereas in Britain 'the catastrophic coincidence of urbanization and industrialisation created vast polluted zones of misery and disease, in France most industrial workers were either domestic, like the weavers of Normandy and Lyon, or seasonal...'.⁴⁸ This catastrophic urbanization made typhus, a disease of filth and overcrowding, the killer of the poor in the new manufacturing towns of Britain, becoming epidemic at irregular intervals as happened in 1817-19, 1826, 1836, 1843, and 1856.⁴⁹ In France typhus fever was seen much less commonly than typhoid fever. However, as Jenner makes plain there was a resistance in the minds of many British physicians — possibly as a consequence of the prolonged influence of Cullen's theories — to the notion that fever was other than a single essential entity. An example of this persistent adherence to outdated theory can be found in the writings of Sir Robert Christison, Bart, (1797-1882) who in the 1850s was still using terms such as synochus and synocha.

Another barrier to the adoption of the new work from France may have been an inability to read French sufficiently well to learn from the research of such men as Prost, Serres, Brettoneau and Louis. Gerhard in Philadelphia and Stewart in Glasgow were two physicians who spoke fluent French and were clear in their descriptions of typhus and typhoid. Henderson in Edinburgh by careful observation saw that there must be another type of typhus when those who had immunity to typhus fever were now struck down by a similar fever, relapsing fever.

Many decades separated the early work of Prost in Paris from that of Jenner in London and several decades were to pass before the causative organisms and modes of transmission were identified by the work of researchers such as Charles Nicolle in 1911, who identified the mode of transmission of typhus during an epidemic in Tunis; the American, Ricketts and the Czech, von Prowazek in 1910 and 1913 respectively who isolated the organism responsible. Obermeier in 1873 published his findings having identified the organism responsible for relapsing fever during the Berlin epidemic of 1867-68 and Mackie working in India in 1907 proved that the common louse was the vector.

Over a century had passed from the work of Prost until the final clarification.

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THE ONE HUNDRED AND EIGHTIETH ORDINARY MEETING

The One Hundred and Eightieth Ordinary Meeting of the Society was held at the Royal College of Physicians and Surgeons of Glasgow on March 8th 2008. Two papers were read, one by Dr Vaughan Martin entitled David Livingstone's Curious Point and the other by Mr Roy Millar on the Glasgow Humane Society.

Dr Martin's paper has already been published in *Vesalius* 2007, volume 13 (ii) pages 68-74, and so only a very brief summary follows.

The explorer and missionary David Livingstone was identified after death by the appearances of his humerus, which had been damaged in an encounter with a lion. In his writings, Livingstone suggested that the consequences of the lion's attack were not as bad as he might have expected. He wondered if this was due to the fact that he was wearing a tartan jacket when he was attacked and suggested that this curious point should be investigated. Dr Martin's most interesting paper looked at some of the dyes used in tartans of the time and described their effect on the bacteria that could be present in the mouths of lions.

THE GLASGOW ROYAL HUMANE SOCIETY

Towards the end of the eighteenth century, Glasgow was prosperous mainly through trading abroad, despite the fact that the average navigable depth of the Clyde, for the last twelve miles up to Glasgow, was only three feet. Cargo had to be unloaded downriver on to small vessels to be rowed, poled or sailed to the quay at the Broomielaw. Although by 1800 a succession of famous engineers, Golborne, Rennie and Telford, had managed to increase the depth to seven feet, it was still a clear, salmon fishing river, virtually unaltered above Old Glasgow Bridge. By then there were about 43,000 inhabitants.

It is against this background that a wealthy Glasgow merchant, James Coulter, made an unusual bequest, when he died on 6th September 1788. He left large sums of money for philanthropic purposes, such as £1200 to provide pensions for worthy and deserving people in indigent circumstances, and £500 to found a school where girls might be taught English knitting and sewing during the course of two or three years. On 29th September, three weeks after his death, the President of the Faculty of Physicians and Surgeons presented the following extract from Coulter's Deed of Settlement to their meeting-

"Item, the sum of two hundred pounds sterling which I hereby mortify appropriate as a beginning or foundation for raising a fund for the useful charity of recovering persons apparently dead, or in imminent hazard of it through sudden indisposition, immersion in water, or other accidents, in the manner of the plan of the Society at London called the Humane Society, and which sum I appoint to be lodged in the hands & under the direction & management of the Faculty of Physicians and Surgeons of Glasgow to be by them applied or secured for the purpose of this mortification...."

In May 1790, the Faculty wrote to the Secretary of the London Society, requesting a copy of its constitution and regulations, and offered to purchase "a sett of the necessary apparatus" A very courteous reply was received from Dr Hawes of London, which included the regulations and a promise to gift the requested apparatus, which duly arrived. On 13 July the Glasgow Mercury printed a long, unsigned, letter telling of James Coulter's legacy, the aims of a humane society and Glasgow's great need of one. It also solicited donations from the public.

On 16th August, the inaugural meeting was held in the Tontine Tavern. A constitution was formulated and Gilbert Hamilton was elected President. Tall, thin and highly intelligent, he was an original member of Glasgow's Chamber of Commerce, Dean of Guild in 1791 and 1792 and Provost in 1792 and 1793. As a merchant, he is recorded as selling ironmongery, London Porter and oil of Vitriol. James Watt was his brother-in-law. Dr Robert Cleghorn became Secretary and Robert Simpson, surgeon was Treasurer.

The Lord Provost, the Dean of Guild, the Deacon Convener of the Trades House and the Preceptor

of Hutcheson's Hospital were to be Directors ex-officio in all time coming, as were the Office Bearers of the Faculty of Physicians and Surgeons of Glasgow. The Treasurer was empowered to award premiums to those who aided in any recovery, according to the danger involved or degree of help provided. The Society would meet quarterly. Three sites along the river were chosen as suitable for stationing the required equipment. Three hand-barrows to transport a person to a receiving house were ordered, as well as three mattresses, twelve pairs of blankets, twelve hand towels and drags for use in the river.

Glasgow Green in those days was always crowded, with women washing clothes, men fishing and children playing and bathing- especially near a dangerous spot known as the Peat Bog. The Green was therefore selected as the most important site. It was decided that a boat should be moored there in a shed or booth, where equipment could also be stored. In fact, until the first Society House was built in 1796, the Washing House on the Green, (built in 1730 and drawing its water from the nearby Camlachie Burn), was used as a store and a receiving house by the Society. The other sites chosen originally were at Peter Stewart's, Vintner, Broomielaw and Robert Lockhart's at the Toll Bar below the Broomielaw.

The third meeting was called earlier than planned, on 28th January 1791, because of the first demands on the Society's funds from participants in alleged rescues. They are minuted thus

"The Secretary informed the meeting that he had called it for the purpose of laying before them the petitions of Walter Dick, & of Archd McKendrick, each of whom claimed a premium from the Society. On the 14th January a young woman fell into the River & sank to the bottom, the alarm being given, Walter Dick plunged into the water & brought her out... The Secretary having reported that he had conversed with various people who were witnesses of the fact, and with the young woman herself who confirmed everything stated by Mr. Dick, the Directors voted him 10/6 which the Collector is impowered to pay"

Archibald McKendrick stated that he took a man into his boat very soon after he had fallen over its edge, & he had risked his life on several former occasions, of which however, he could not distinctly specify the particulars. Considering every circumstance, the committee thought the person hardly entitled to any premium, however for the purpose of arousing the attention of the common people, they ordered the Collector to give him 5/-"

Despite a few instructions which would be regarded as strange today, the methods of resuscitation to be used then were remarkably sensible and remain so. For this one must thank the founding doctors of the Royal Humane Society. They turned for advice to John Hunter, the famous surgeon. He gave a lecture to the Royal Society on March 21st 1776, entitled Proposals for the Recovery of People Apparently Drowned.

It begins-

"Having been requested by a principal member of the society lately established for the recovery of persons apparently drowned, to commit my thoughts on that subject to paper, I readily complied with his request...."

There follows his philosophical views on modes of death and details of animal experiments he had conducted in resuscitation. He then gave practical advice on artificial respiration, the value of gentle warming and even suggested trying the application of electricity "when every other method has failed". The Annals of Glasgow of 1816 contains an article which shows his advice was heeded. The salient points made in "The Directions for the Recovery of Drowned Persons" bear scrutiny

"Any wet clothing should be removed, the body dried and the patient quickly wrapped in warm blankets, or if none available, a great-coat or two. He or she should be transported indoors, making sure the head is kept in a natural position, and the mouth and nostrils cleared. Warming should be gentle. It is suggested that a child might be placed between two adults to benefit from their body heat. In summer or sultry weather the windows and doors should be open to obtain cool refreshing air. Never more than six people should be present to help and the curious

should be told to leave.

One of the assistants should insert the pipe of a bellows into a nostril and introduce air into the lungs while another assistant closes off the mouth and the other nostril. After the lungs are inflated, an assistant should gently press on the chest with his hands to expel the stagnant vapours, thus initiating natural breathing. If no bellows are to be had, press with the hands the breast and ribs so as to imitate breathing. On signs of returning respiration, give a teaspoonful of water, and if the person can swallow, give a small quantity of warm wine or diluted spirits."

Contrary to common practice in his time, Hunter wrote

"I would by all means forbid bleeding, which I think weakens the animal principal, and lessens life itself."

The 1816 instructions echo this advice, as well as exhorting that the wind pipe should not be opened without medical aid. Efforts to restore life should be continued for at least three hours.

The Society's first house on the Green cost £300 and included a room for a keeper. The Magistrates and Council decreed that, at any time they thought proper, they should cause it to be removed without paying any consideration to the Humane Society, except allowing them to remove the materials of the building. The first man referred to as an Officer of the Society, was Nathaniel Jones, but the first resident Officer was John Wiseman, a shoe-maker to trade. In 1810 the house was hit by lightning and, as a consequence, was shortened by 28 feet and in 1867, at a further cost of £260, it was extended with a frontage which allowed the mooring of rowing boats for hire. James Geddes, the first of a dynasty with that name, is recorded as "having an agreement with the Society, of date 28th May 1841" His tenure of office was not at all satisfactory. He developed a nicely remunerative trade as a ferryman, using the Society's quay, so that in 1849 the Directors sought to claim the sum of £20 as a solatium for the boon bestowed on him by the Society and the Council. However, in 1853, a pedestrian suspension bridge was built across the river immediately upstream from the Royal Humane Society House. James therefore claimed that he was greatly reduced in his worldly circumstances by this and sought recompense for his expenditure on ferryboats and "*other materials necessary for providing a service*" from the Society, and from the Town Council. Both authorities reminded him that neither had appointed him as a ferryman and reckoned that his income had been worth more than twice his outlay.

In 1858 the Directors brought him before them because of his frequent absences and general inefficiency and gave him due notice in writing. It was noted that his name had not appeared in a rescue for more than ten years. They decided to dismiss him and gave him due notice in writing. He appealed with a tearful letter, claiming he could only look forward to destitution for himself and his family. The Directors relented, but in December that same year, the local Superintendent of Police informed them that he was consorting with three released convicts regarded by the police as the most daring thieves in the city. He was dismissed forthwith to be replaced by his brother George, who had been responsible for several rescues and had in truth been standing in for James most of the time. On this occasion, a contract laying down specific conditions and duties was drawn up. Thereafter, at each General Meeting, his attention to duty and the help his wife gave with resuscitation of cases brought to the house, was always gratefully acknowledged, as was the assistance of the police.

In 1860, George Geddes was awarded the Society's Gold Medal for his fifteen years of service, firstly as assistant and then as their "Chief Officer". Then in 1873, at the Annual General Meeting, the Bronze medal of the Royal Humane Society was presented to him by the Chairman. Only nine days later there was the first indication that George junior might follow his father into the Society's service. The Society awarded him with an Honorary Certificate and a sum of money for rescuing a little girl, Mary McClue, from the river. It was his first recorded rescue, at the age of fourteen.

By 1888, concern was expressed about the health of George primus, who seems to have suffered pneumonia with residual lung damage after saving a woman earlier in the year. It was his custom to swim to the aid of the victim and this time he had become submerged for an unduly long period

and probably swallowed some polluted water in the process. He died on 17 January 1889. His son's appointment as successor was unanimously endorsed by the Directors.

In July 1900, there was an International Exhibition in Paris. As late as 28th February, the directors observed that a life saving competition on the Seine was included in the programme. They decided that the Society should compete. In April they wrote asking if a boat would be provided. They learned that they would have to provide their own. When they met on 27th June, they were told that it was being built. When they next met, on 20th September, the Secretary could report "Our Officer, George Geddes, has been to Paris and has been most successful in the competition for which he entered and was awarded the Gold Medal and the prize of a Bronze figure. This was very satisfying and showed the experience and training which our officer had gained in our own water gained him an expertness which was unequalled by any in the Competition" To gauge the excitement, the event caused, one must turn to the newspapers of the day. The Glasgow Citizen described the boat specially built for the event thus-

"There was launched from the yard of Mr. Ewan McGruer, Rutherglen, a rather ingenious boat which will be used by Glasgow's representatives in the Humane Society demonstration and three day competition among the officers of Humane Societies and aquatic life saving agencies throughout the world at the Paris Exhibition from the 21st to the 23rd curt (ie July). The boat is the joint work of Mr. George Geddes, of the Glasgow Humane Society and the builder. It is unique in design and promises to be a most useful craft for life saving. The little vessel is double bowed, built entirely of cedar. Unlike the ordinary pleasure crafts, the seats run longitudinally. By this arrangement the crew can move about without difficulty, change positions in an instant and send the craft in any direction without loss of time. The boat is so constructed that it can be navigated in rough or calm waters with equal ease. It is 21ft in length and very light, yet it goes all the better when weighted. The preliminary manoeuvres in the river yesterday were in every way satisfactory."

The Crew entrusted with the honour of representing the City are Mr. George Geddes, Mr. James Aitken, the well known trainer of Queen's Park Football Club, and Mr. Gavin Meiklejohn." The Glasgow Herald of 26th July gave a full report of the event, ending-

"Mr. Geddes writes, 'According to the New York Herald, we are the only representatives of the English speaking race at the great life saving exposition which is being held down river. Well we won and won easily in our event. We had to row about 400 yards, pick up a dummy and return with it to the Tribune about 50 yard back. We got best away and performed the task, both quickly and without exertion and won by about 80 yards.'"

The telegram he sent to his wife, from the Asnières Bassin on the Seine, contained the words "Broke Sunday", meaning that he had had to compete on a Sunday, thus breaking the Sabbath against his Calvinist upbringing.

In 1901, George Geddes secundus received the Royal Humane Society Silver Medal. Rescue work continued to be a family affair. The third George Geddes's name began to crop up regularly, especially in helping his father. For example on August 12th 1911, his father hurried down an embankment to aid a drowning man, only to stumble and fall heavily forward, gashing his knee on the sharp ironstone slag. Despite this, he reached the struggling man who grasped him so tightly that he could not move. They both went under water. Just in time, his son arrived in a boat, with two other men and they managed to haul both victims in. George secundus was admitted to Glasgow Royal Infirmary. He developed a gross sepsis and was detained for eleven days. He was incapacitated for two months, during which his son carried on the Society's work. This was the second time that the young man was reckoned to have saved his father's life and the Society presented him with an Honorary Certificate for Meritorious Service. However, four more years were to pass before he was officially appointed as Assistant in 1916.

A great tragedy befell the family on Saturday 24th November 1928. The Clyde was in flood. A man either jumped or fell into the river from the King's Bridge, which is about 450 yards upstream from the Society's House. A constable alerted young George, who was with David Docherty, a

sixteen year old boy, at the jetty.

The constable tried to catch hold of his clothing but failed as the man turned in a whirlpool. Thereupon George Geddes dived in fully clad and reached him before they both disappeared below the surface. An oar was lost and it proved an almost impossible task to try to keep the boat near the spot where they were last seen. Eventually, they were compelled by sheer exhaustion to give up and they were helped ashore by a line which had been thrown to them. George secundus, in his 70th year, witnessed the entire proceedings. His son was 37. His body was only recovered after four days of dragging the river.

Obviously the older man needed assistance. Fortunately there was a man, Ben Parsonage, who was already giving it. Although of very small stature, he was powerfully built. Some years before, he had won the Fleming Cup as sculling champion of Clydesdale Rowing Club and he had already taken part in several rescues. On 3rd July 1929 the Directors appointed him as temporary assistant. A bachelor at the time, Ben initially stayed with the officer in the old Society House, which was in a sad state of repair. In 1932 they had to be accommodated in a rented flat nearby. George Geddes was given the title of Honorary Consulting Officer, but he died in the Royal Infirmary on 11th December that year after a short illness. Ben Parsonage was his natural successor.

Although a new house was obviously a necessity, it was not until 29th January 1936, because of problems raising finance, that the Lord Provost was able to unveil the lintel stone, bearing the simple inscription GLASGOW HUMANE SOCIETY. The house was officially opened by the Rt Hon Walter Elliot MP, Secretary of State for Scotland, on 15 June 1937. Ben Parsonage, now with a wife and daughter, took possession seven days later. By then, he had been awarded the Glasgow Corporation Medal for Bravery, and his position as Officer regularized. His job description allowed him to hire out rowing boats, using the Society's pier. His son christened George Geddes Parsonage, after his old friend and mentor, was born in the house in 1942. As with previous officers, Ben's family gave unstinting help. Sarah, his wife, assisted in the care and resuscitation of cases brought to the house and when she was less able because of ill health, manned the phone constantly. The diminutive Ben carried out many difficult rescues, which earned him a bar to his Corporation Medal in 1953 and a second bar in 1955. His work was further recognised in 1971 when he was awarded the British Empire Medal.

After Ben's death in 1979, his son George became the Society's Officer, thus carrying on what has become a tradition. George, however, is a gifted artist and sculptor who taught art at Glasgow's Whitehill School, with a dispensation from the Education Authority to attend any emergency as required. George is also a world class sculler and helped his father on many occasions. In fact, he too won the Corporation's Bravery Medal, in 1971, the same year that the Royal Humane society gave him a Testimonial on Parchment and Resuscitation Certificate. Since then he has become a Member of the Order of the British Empire, winner of Glasgow's St Mungo Prize in 1998 and acquired Honorary Degrees from two of our newer Scottish Universities.

Although the Clyde is now much quieter, the rescue service provided by the Society has always covered its tributaries, canals, lochs, ponds and quarries, anywhere in the surrounding area where someone might drown. Annually up to 15 people still need to be rescued and slightly fewer bodies need to be recovered, which can be painstaking, long and taxing. Nowadays, much time is spent on safety on the river. Wanton theft of lifebelts still persists. Dangerous flotsam often requires removal and erosion of the banks is notified to ensure repair.

At a time when new means of easy communication and rapid transport have developed it is a sad irony that this service seems due to be terminated thanks to modern Health and Safety Regulations. Officially, at least two men are required to rescue someone from the water and the responsibility has devolved on to the Fire and Rescue Service. Four fire stations near the river have teams of men ready to be called out. They are equipped with wetsuits, water skis and rubber dinghies etc. with an alleged response time of eight minutes. Despite reaching the age of 65 in 2008, George Parsonage continues as the Society's Officer and fights on. I fear it is a losing battle.

We have come all the way from the Clyde that James Coulter knew in his life time and when salmon were caught from small boats near Glasgow Green, through the bustle of the early steamships at the Broomielaw, (an era when there was a gross increase in drowning there because of the poor lighting, drunkenness of passengers and sailors and mere boarding planks- gangways

only came into existence in the late 1860's). Salmon have returned to the river, which has a sylvan appearance once more as it passes through the Green. After more than 200 years of service, the end of the last Humane Society actively pursuing its original purpose is in sight.

THE SEVENTEENTH HALDANE TAIT LECTURE

The Seventeenth Haldane Tait Lecture was held in the Craighouse campus of Napier University, in Edinburgh, on May 7th 2008. The speaker was Professor Anne Crowther, of the Department of Economic and Social History at the University of Oxford and the subject of her talk was Death and the Weather.

DEATH AND THE WEATHER

One of the chief differences between the annual reports of the Registrars General of Scotland and of England between the 1850s and the 1920s was the amount of space that each devoted to the weather.

The idea that health and climate are closely related is a very old one, going back at least as far as the Greek physician Hippocrates. Invalids who could afford it were often urged to seek a suitable climate, and by the nineteenth century, the climatic search for health had become international. Sufferers from tuberculosis, for example, were urged to journey to the South of France, Egypt, or even Australia, in search of better health in a dry climate.

In Scotland, medical theories popularized in the eighteenth century by the eminent Edinburgh physician, William Cullen, stressed that cold was a predisposing cause of disease. Dr. James Stark, the first Superintendent of Statistics at the General Register Office for Scotland, (GROS), believed very strongly in the relationship between health and climate, and he was convinced that if better records of Scottish meteorology were kept, they would offer vital clues to this relationship. For the purposes of his reports, he divided Scotland into areas reflecting what he believed to be the prevailing climatic conditions, rather than concentrating mainly on the difference between town and country, as the English reports did. The English and Scottish reports also reflected fundamental differences between the Royal Colleges of Physicians in Edinburgh and London. Stark, a member of the Edinburgh College, shared the views of several of its leaders that cold, hunger and poverty were predisposing causes of disease, whereas the London College was still interested in the 'miasmatic' theories of disease causation, that led to an emphasis on sanitary conditions, particularly water and drainage. These views were not, of course, mutually exclusive, but they led to a fair amount of rancorous argument.

In England, the Royal Society received a government grant to encourage meteorological reporting and research. It worked closely with the navy, which had a long-standing interest in such meteorological features as winds and currents. A number of weather stations were set up, and they reported to the Meteorological Office in London. The Registrar General for England and Wales printed a summary of these reports, mainly in his quarterly returns, and a shorter version in his annual report, but did not comment on them in any detail.

Stark formed an important link between medicine and meteorology in Scotland. The Scottish Meteorological Society was founded in 1855, the same year that civil registration began in Scotland. The Society had some prestigious supporters, particularly amongst the great landowners, who had an interest in recording the weather for agricultural purposes. James Stark was appointed as secretary to the new Society, and produced its annual reports for a short period until problems with his health, and pressure of work in the GROS, forced him to give this up. But his reports for the GROS continued to draw heavily on the work of the Society, and the reports have a degree of detail in their weather reporting that was never emulated in England.

In England, meteorology was supported by the state, but attempts by the Scottish Meteorological Society to tap into this failed, much to the Society's annoyance. The Meteorological Office in London supported a few Scottish weather stations, but the Scottish Meteorological Society believed that they were entirely inadequate to report the complexities of the Scottish weather.

Scottish weather reporting therefore relied on a network of private and volunteer bodies. By the

late 1870s, the 'official' stations, which were predominantly in the Scottish lighthouses, were supplemented by 55 amateur weather stations. The latter were mainly supported by the gentry, who usually asked their gardeners to record the weather, and by volunteers such as schoolmasters, who got their classes to participate. One or two doctors who were employed in asylums took part, but the demands of general medical practice were not compatible with the regular routine needed for meteorological observations. As in England, the reports included high, low and mean temperatures, a comparison with the mean of the previous 20 years, humidity, pressure, wind, rainfall, hours of sunshine and a general comment on each day's weather. The English reports gave the amount of positive and negative electricity in the atmosphere. The Scottish reports did not run to this, but did include underground temperature, the temperature of wells and springs, the temperature at the coast, and records of thunder, lightning and auroras. Stark's own quarterly reports included much detail from these local observers, some of it quite poetical, as in this account of the mild January of 1858:

'At Aberdeen the hazel and snow-drop were in flower on the 25th, and at Banchory House the Rhododendron ponticum was in flower on the 29th. The thrush was often heard singing during the month at Scourie, and the lark at Aberdeen.'

The Scottish Meteorological Society's greatest coup was the construction of an observatory on top of Ben Nevis in 1883, after a national appeal in Scotland for funds. The reluctance of the Royal Society and the Meteorological Office to provide any financial backing caused great offence, and the observatory became something of a symbol of national pride. The Meteorological Office was forced to pay up if it wanted weather reports from Ben Nevis. Relations between the Registrars General for Scotland and the Scottish Meteorological Society remained close, and in 1912, Dr. James Craufurd Dunlop, the Registrar General for Scotland, was permitted to pay the Society in return for the weather information they provided. He was committed to keeping weather as part of his statistical returns for Scotland, but for different reasons from Stark's. By this time, the causes of disease were better known, and weather featured less prominently in medical thinking, but Dunlop argued that the Registrar General had a duty to keep on reporting the Scottish weather, as it was not adequately done anywhere else. In return for government funding, the Scottish Meteorological Society had to agree to liaise with a branch of the Meteorological Office set up in Edinburgh. The needs of warfare provided a great stimulus to weather reporting, and in 1921 the Meteorological Office, via its Edinburgh branch, took over the reporting that had previously been done by the private Society. At this point the British weather was effectively 'nationalized'.

Weather continued to feature heavily in the reports of the Registrar General for Scotland until Dunlop's retirement in the 1930s. The Registrar General for England had already given up on weather reporting, arguing that it was most effectively done by the Meteorological Office. But the relationship between health and weather still creates interest. In 2002, the Registrar General for Scotland sponsored a report on excess winter deaths. Excess mortality in Britain is higher than in other Northern European countries, and an explanation for this is sought, though the poor standards of much British housing is suspected to be the main cause. Stark would also be gratified to know that research is still ongoing over whether the mortality rates in the West of Scotland, which compare unfavourably to those of the rest of the country, can be partly attributed to the particularly dreary climate of this part of the world.

This is an abridged version of Professor Crowther's Haldane Tait lecture. More details can be found on the Glasgow University Website Scottish Way of Birth and Death at the url <http://www.gla.ac.uk/departments/scottishwayofbirthanddeath/death/deathandtheweather/>

THE HUNDRED AND EIGHTY FIRST ORDINARY MEETING

The One Hundred and Eighty First Ordinary Meeting of the Society was held at the Perth Concert Hall on Saturday 14th June 2008. There were two speakers, Sarah Winlow, of the Perth and Kinross Heritage Trust, gave a paper on the Carpow Bronze Age Logboat and Dr Stuart MacDonald, of the University of Glasgow's Anatomy Department, talked on the Supply of Cadavers for 19th Century Anatomists in the West of Scotland.

THE EXCAVATION AND RECOVERY OF THE CARPOW BRONZE AGE LOGBOAT

In August 2006 Perth and Kinross Heritage Trust (PKHT) successfully completed the excavation and recovery of a Bronze Age logboat from the Tay Estuary. This was the end of the first stage of a project which had started five years earlier, with the overall aim of recovering, conserving, preserving and eventually presenting the vessel to the public.

A logboat is a vessel carved from a single tree trunk, and is a type of water craft first used in early prehistory. The earliest recorded example from Europe was found in Denmark, dating to around 7,000 BC, and they were used, in some cases, up to the 18th and 19th centuries, and, in other parts of the world, to this day.

Approximately 150 logboats have been recorded from Scotland, mainly dating from the period 500BC to AD1000. Seven come from the Tay estuary, all discovered during the 19th century. Only one of these survives today, in the McManus Museum and Art Galleries in Dundee, one of two found by fishermen near Errol. Two other logboats, both found at Lindores around 1816, were broken up and used as building lintels in Newburgh.

The Carpow logboat was first reported in 2001 by metal-detectorists investigating the sands and gravels of the Carpow Bank, at the head of the Tay Estuary. One of the detectorists, Scott McGuckin, recognised what he considered was a possible logboat, partially buried within the sands, and reported the discovery to PKHT. The site was subsequently visited in September 2001 by representatives from PKHT, Fife Council, Historic Scotland, the National Museums of Scotland, Perth Museum and Art Gallery and the Royal Commission on the Ancient and Historical Monuments of Scotland, and the find was verified as a logboat.

Preliminary analysis of the exposed section of the vessel established that its condition was fair, although subject to continual erosion and abrasion by the high-energy environment of the Tay. Initial archaeological evaluations, involving small-scale excavations and scale drawing, were undertaken in 2002 and 2003 to establish the date, length, and condition of the buried part of the vessel. The location of the boat, situated on inter-tidal sand and mud banks, made excavation complicated. The River Tay has a mean annual discharge of 160m³/sec, with the volume of water flowing downstream as a result of rainfall or melting snow seriously affecting the tidal level. Only a low tide preceded by a dry period of around one week exposed the logboat, giving a tidal window of around 3 to 4 hours, which limited the number of possible visits to the site. The Tay estuary also has a number of environmental designations, as a Site of Special Scientific Interest (SSSI) and a Special Protection Area (SPA), which affected the project design.

The results of the preliminary excavations were significant, with carbon14-dating the vessel to 1130-970 BC, making it the second oldest logboat to have been discovered in Scotland. Excavation established the boat was 9.25m, or 30ft long, with the buried portion surviving in excellent condition. This included an intact transom-board, a separate back-board inserted into the vessel, a feature rarely found surviving in such examples. The late-Bronze Age date and excellent preservation of this vessel make it one of the best preserved and most important prehistoric boats to survive in Britain.

Monitoring following this initial research, however, showed that the exposed prow of the boat was rapidly eroding as a result of inter-tidal action. Given the importance of the vessel, a plan for its long-term preservation was required, with the boat secured in the short-term by a protective barrier of sandbags to reduce the tidal impact.

By 2006 the strategy and funding were in place to fully excavate and recover the logboat for conservation. The final excavation and lift was carried out over seven days in July and August 2006 by PKHT, with support from CFA Archaeology Ltd, an archaeological contracting unit, and Moorings and Marine Services, a local marine engineering firm.

The logboat was carefully excavated to avoid damage to the buried section of the vessel. Digging down into the sands and gravels, the stern was discovered to lie almost 1m below the ground surface, with the base held within a layer of clay. Although the excavations took place at low tide, the bottom of the trench lay below the low tide water table. This resulted in a constant stream of water seeping in from the sides of the trench, and required pumps to remove the collecting water.

The boat was rigged to float using air-filled barrels, secured to the vessel with protective padding and straps. Once the logboat was fully excavated, as the tide came in, water started to flow into and gradually fill the excavation trench. The logboat started to float, and the boat was slowly manoeuvred out of the trench and across to the riverbank.

The following day the logboat was secured using protective netting, and towed by motorboat 1.5km downstream to Newburgh quay. At the quayside it was carefully floated into a custom-built lifting frame and suspended using flexi-boards and straps. The boat was then transported to the National Museums of Scotland for the conservation process to begin.

Once out of water, the vessel was at constant risk of drying out and disintegrating, with the loss of water causing the cells of the wood to collapse. During the first stage of the conservation process, the boat was kept wet to prevent this breakdown, enabling the cleaning process to take place. This initial stage of conservation uncovered details of the logboat's construction, including a second dwarf transom groove, tool-markings on the inner face of the transom board, and evidence for repairs made in prehistory. The vessel was subsequently cut into three sections to allow it to be soaked in tanks of PEG (polyethylene glycol) solution. This process replaces the water in the cells of the wood with a more stable chemical compound, allowing the boat to be displayed in a museum atmosphere without the need to be kept wet. Once the process of impregnation with PEG is complete, a final phase of freeze-drying will be used to remove any remaining water. Once this conservation process is complete, the intention is for the logboat to return to Perthshire, where it will go on display in Perth Museum and Art Gallery.

This summary of Sarah Winlow's paper is based on a report by her colleague Stephen Timoney of the Perth and Kinross Heritage Trust. More information, including details of publications on the Logboat project, is available via the PKHT website <http://www.pkht.org.uk/Projects/Carpow-Logboat/>

THE SOURCES OF CADAVERS FOR THE GLASGOW MEDICAL SCHOOLS IN THE EARLY 19TH CENTURY

The anatomical schools

In the years immediately prior to the Anatomy Act of 1832 that regularised the supply of cadavers for dissection, three medical schools in Glasgow taught anatomy. At that time the University lay on the east side of the High Street and anatomy had been taught there since before 1720 (Coutts, 1909). It certainly seems that Robert Hamilton dissected when he became Professor in 1742, as in 1744, 1745, 1748 and 1749, because of suspicions about practical anatomy, mobs attacked the College (Coutts, 1909). At the University, Professor James Jeffray presided over the teaching of anatomy from 1790 - 1848. His 58 years in the Regius Chair of Anatomy is a record for length of tenure of a medical chair. In the early 19th Century, however, anatomical dissection was also carried out at the College Street Medical School (c1797 - 1835+) and at the Portland Street School (1822 - 1844) (Duncan, 1896; Mackie, 1954; Pattison, 1987; Geyer-Kordesch and Macdonald, 1999). College Street ran off the High Street just opposite the old University and Portland Street is one of the steep lanes between Rottenrow and George Street in what is now the Strathclyde University Campus. There is also evidence of other anatomy classes in Glasgow,

but their details are poorly documented. At College Street anatomy was taught by John and Allan Burns and later by Granville Sharp Pattison, Andrew Russell, George C. Monteath, John Robertson and William MacKenzie. At Portland Street in the 1820s the anatomist was Robert Hunter (Duncan, 1896).

The need for cadavers

In the 18th Century, in London, William Hunter had offered the opportunity to dissect “in the same manner as at Paris”, that is dissection by the students themselves (Gelfand, 1972). This mode of learning probably was initiated in Glasgow during the tenures of Thomas Hamilton (1757 – 1781) or his son William (1781 – 1790), both of whom held the Regius Chair of Anatomy (Mackie, 1954) and were friends of Hunter. Indeed, William Hamilton had been trained by Hunter who entrusted him with running his dissecting room (Geyer-Kordesch and Macdonald, 1999). Clearly learning anatomy in this way required more cadavers than didactic teaching over a demonstration dissection.

At the same period, the Napoleonic Wars probably prevented many from Britain travelling to the Continent to study Medicine (Coutts, 1909) and also created a need for surgical training (Duncan, 1896; Coutts, 1909). The result was a large number of students wishing to study Anatomy in Glasgow. Many were preparing to apply for a surgical licence from the then Faculty of Physicians and Surgeons of Glasgow. Advertisements for anatomy courses, particularly by the extramural schools, often stated that their courses were recognised for the surgical colleges of Glasgow, Edinburgh, London and Dublin. In 1814, about 800 students were studying anatomy in Glasgow (J. T., 1826).

Bodies of hanged murderers

Between 1752 and 1832, the bodies of hanged murderers were dissected or gibbeted under the Act for Better Preventing the *Horrid Crime of Murder* 1752 (Richardson, 1987). This was the only legal source of cadavers for dissection. In the eighty-year period between 1752 and 1832 when the act was repealed, there were thirty-eight executions for murder in the West of Scotland (Kennedy et al., 2001).

Twenty of these were in Glasgow. The others were in surrounding towns where the Circuit Assizes sat: Ayr (8), Dumfries (3), Greenock (1), Inverary (1), Paisley (1) and Stirling (4). Three of these bodies were gibbeted: one in Glasgow and two in Ayr. Gibbeting was unpopular in the West of Scotland. Two gibbeted bodies were removed in the night, it is said by townspeople wishing to protect their vegetables from the flies the bodies would attract, but one hung on Ayr Common from 1758 to 1779 (Young, 1998). “A murderer’s banes in gibbet aims” was thus familiar to Burns. Twenty-three hanged criminals from in and around Glasgow were dissected in Glasgow University. None were sent to the other (private) medical schools and the remainder were either sent to the University of Edinburgh or, in the more peripheral towns, were dissected by local surgeons. The legitimate supply was thus highly inadequate to the demand.

Resurrectionist activity

Many of the bodies used in Glasgow’s dissecting rooms were resurrected from local churchyards (McDonald, 1995, 1997). In 1826, towards the end of the body-snatching era, students in Glasgow were provided with bodies at 4 guineas per subject, injected if required (Veritas, 1826); in Edinburgh the price was usually £6 - £10 but ranged up to 19 guineas or more (A Constant Reader, 1826; Veritas, 1826). Throughout the United Kingdom, medical schools were supplied with bodies by “resurrection men”. In Glasgow, students also took part (A Would-Be Resurrectionist, 1826).

The following reports give some idea of what scenes could be like when it was discovered that a grave had been violated and the distress experienced by the families of the deceased.

Glasgow Herald 17 November 1823

On Friday morning last, the grave of a woman who had been buried about a fortnight

ago in Cadder Church-yard, in the neighbourhood of this city, was observed to have been disturbed; on which it was again opened, the lid of the coffin found broken, and the body away. - The husband and some of his friends came immediately to the Police Office, Glasgow, and gave information, and a search was made in all the anatomical schools in town, by the friends themselves accompanied by the Superintendent of Police; but the body was not found. - Last night a considerable party from Cadder collected about several of the Class-rooms, and some fears were entertained for the safety of the buildings. On a representation by the Superintendent, of the searches that had been made by him accompanied by her friends, and the latter declaring that they considered themselves satisfied, they dispersed. - From the exertions of the Police, the body has this forenoon been discovered in the rear of a house in Castle Street, Stirling's Road.

The next story is unusual in that it happened during the day.

Glasgow Herald 25 February 1831

On Monday afternoon the town of Kirkintilloch was in a state of unusual excitement, in consequence of a party of churchyard thieves having been detected committing their unhallowed depredations. The discovery was made by a girl, who saw a sack thrown over the wall of the burying-ground. She gave the alarm instantly: but the thieves, three in number, ran off, two of them escaping. A dog was hunted after them, which seized and threw down one of the party; but he succeeded in getting up and ran into a wood where he was afterwards found in a hole almost covered with mud and water. At this time a crowd of some hundreds had joined in the pursuit, who were with great difficulty prevented from tearing the miscreant to pieces. He was conveyed to the town for the purpose of being lodged in jail; but the crowd was so much increased, and was become so fierce, that he had to be taken to the Black Bull Inn. ... In the sack thrown over the wall, there was found the body of an old woman, recently interred. Such an outrageous attempt at church-yard violation in broad daylight will, it is hoped, be promptly punished.

Mortsafes and churchyard watches

Various methods were used to try and defeat the body snatchers: iron cages, grilles on the ground, mortsafes, and watchhouses. Some may still be seen in churchyards. After a funeral at this period, it was common for the relatives to engage watchmen and some towns had more formal arrangements. Some churchyards had purpose-built watch-houses and frequently the guard was armed. The following story tells of a fatal accident with firearms.

Glasgow Herald 13 January 1823

On Friday evening, a melancholy and fatal accident happened in the North-West burying ground. Two young men, while watching the grave of a relation, fell in with another man, who was also watching in a different part of the church-yard. The latter had a loaded pistol, which one of the former took into his hand and was examining. He inadvertently cocked it, and returned it to the owner, when the piece immediately went off, and the ball pierced the left breast of the young man, entered the chest and came out behind, having passed through the shoulder-blade. He was soon after conveyed to the Royal Infirmary, where he died next day at four o'clock. Neither the deceased nor his companion had any fire-arms: they had only two old swords. The name of the young man who was shot was Wright; he was watching his sister's grave.

Transport problems

A number of the resurrections reported in local papers ended in failure through the body being discovered in transit. Sometimes those who had stolen bodies carried them to the dissecting room on foot. The young man caught with the body in the following story was a medical student, William McGowan.

Glasgow Herald 3 March 1823

Between eleven and twelve o'clock on Friday night the watchman in Ladywell Street observing a person carrying a large bundle on his back, seized him when he discovered that

it contained a dead body. He with the body, and another young man whom they found in the neighbourhood, and suspected to be an accomplice, were carried to the Police Office. The body has been ascertained to be that of Thomas Seggie, inkle-weaver, Havannah Street, who was buried on Thursday last in the High Churchyard.

Often the resurrectionists did not have their own cart and had to hire a “noddy” or a “hurley” to take the body to the medical school. Their appearance sometimes aroused suspicion.

Glasgow Herald 11 September 1829

Resurrectionists. - On Wednesday night about eight o' clock, a fellow hired a noddy at the Cross, and told the coachman to drive to Little Govan. - On the way they halted to take in another person, whom the individual who engaged the vehicle described as his servant. - When the party had got about a quarter mile past the Gorbals Church Yard, the coachman was directed to drive up a by-road, where he observed three or four fellows with shovels over their shoulders, when the servant inside was ordered by his pretended master to go and fetch his luggage. - In a short time the luggage, a large well-filled sack, was brought, and thrown into the noddy, when the driver was ordered to push back again to town with all possible dispatch. - As no particular instructions had been given with regard to the place where the gentlemen wished to be set down, and as the driver had been ruminating in his own mind with regard to the characters of his customers, and the contents of the bag, he thought he could do no better than drive the party straight to the Police Office.

Discarded bodies

Sometimes cadavers were found by members of the public. Presumably these had either been discarded because the risks had become too great or were concealed for collection later.

Glasgow Herald 24 February 1823

On Friday about three quarters of a mile from Hamilton, on the Edinburgh road, a dog belonging to a passenger set up a barking and scratching at a small heap of stones immediately at the back of one of the stone magazines, and would not be called away. His master thinking that he might be looking for some rat or weasel, began to remove the stones to let him get at his prey, when he discovered something hid in a bag, which upon opening, he found to his horror and astonishment, to be the dead body of a woman entirely naked. A rope was tied around the neck and passed down between the legs, drawing the body into as round a form as possible. ... The corpse was conveyed to the church ... and was recognized to be the mortal remains of Susan Smellie, an aged female who died about a month ago.

Stolen before the funeral

By the late 1820s, a time of great poverty in Glasgow, there were occasional attempts to steal bodies before the funeral.

Glasgow Herald 6 June 1825

On Wednesday last, a poor old woman died, who had resided a number of years in Main Street, Calton, and earned a subsistence by selling sand. She had no relations and a coffin was provided by the parish, into which the corpse was put. Friday morning, shortly after three o'clock, some miscreants broke into the house, forced open the coffin, and carried off the body. ...

Arrangements with the anatomists

Sometimes those in possession of the body made arrangements directly with the anatomists or their representatives.

Glasgow Herald 2 December 1831

Last week the wife of a drunken tradesman died ... After procuring a coffin from the town to bury her in, and making a show of grief for a brief space, he began to think ... to make the most of the misfortune which had befallen him, and to save himself from undergoing the heart-breaking ceremony of the funeral and its accompaniments, he, after mature deliberation, first sold

the body of his wife, and afterwards attempted to do the same thing with the gratis coffin. In the latter speculation, however, he was not successful, the individual he applied to being a respectable undertaker.

Burkophobia

Burke and Hare's outrages in Edinburgh in 1828 led to public hysteria. The term "burking" came into being, i.e. murder for dissection. The fear that hit the country was called "Burking Mania" or "Burkophobia". It was believed that such murderers suffocated their victims with a 'pitch plaster' (Richardson, 1987). In January 1832, an old woman died after a lout attacked her in a close in Paisley and placed a plaster of shoe blacking over her mouth (Glasgow Herald 6 January 1832).

Importation of cadavers

The Glasgow papers in the later 1820s contain a few reports of boxes containing bodies, often preserved in salt, being intercepted on vessels docking on the Clyde. For example, in the afternoon of Tuesday, 5 December 1826, three boxes, each containing two bodies, were discovered on the Broomielaw and the next day, a further two, each again containing two bodies, were seized. The former had come by steam-boat from Belfast and the latter from Dublin. Foul smells, or "effluvia" as the Herald termed them, were coming from the boxes; these and what could be seen through a small hole in one of the packages indicated their contents. They were addressed to a fictitious company in Edinburgh but the Glasgow authorities had them interred (Glasgow Herald 8 December 1826; Broadsheet, 1826).

Dr James Paterson, a retired doctor from Ayr gave evidence to the Parliamentary Select Committee on Anatomy in 1828 about how he acquired bodies from Ireland.

"I ... passed a long life in the West of Scotland, opposite to the coast of Ireland. It is no less than fifty years since I began to study medicine, and until I retired from practice, I was in full practice in the county of Ayr; during the whole of that period I was constantly asked by the parents and relatives of young men intended for the medical and surgical profession, to assist them with my advice to direct their studies, and my attention was called to procuring for them subjects for dissection, which I look upon as essential to qualifying them for their profession; I found that in that situation I had very little difficulty, except that which arose from the custom-houses, and that, I frankly own, I evaded by smuggling; the facility of intercourse was so great, that in a few hours a dead body might be procured by means of the vessels which carry over the lime-stone; the dead body was concealed, and put into a boat and landed on the coast; I never found any material difficulty; I also learned that the Universities, both in Glasgow and at Edinburgh, were supplied in the same manner by running up the Clyde or loading them at Fairlie; ... people used to come to me, when they understood I wanted a subject for a young man prosecuting his studies; a sailor would come to me on the evening, walking about, and say, do you wish to have a STIFFIN, I will provide you; the word I presume is a stiff one; and on my saying yes, what terms do you ask, we made the bargain."

Dr Paterson also said that he understood a great many bodies were obtained without exhumation. The Irish regarded the wake as a very important matter but after that they were willing to part with the body for a very moderate sum.

The end of an era

The fear of "burking" coupled with general outrage at the supposed activity of resurrectionists during the cholera epidemic of 1832 allowed Warburton's Anatomy Bill of that year to be passed. The 1832 Act made it legal for the corpses of those dying without provision in poorhouses and hospitals to be used for dissection. For many years after the Anatomy Act, most of the cadavers dissected were those dying in institutions without relatives and it is only in comparatively recent times that the use of specifically bequested cadavers has become the norm. The donors are public-spirited individuals who are clear they wish their bodies to be used after their deaths. The 1832

Anatomy Act, however, ensured a legal source of cadavers and brought to a close the age of the resurrectionists, dissection of hanged murderers and the importation of bodies from Ireland.

Acknowledgement

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These papers, by Sarah Winlow and Stuart MacDonald, brought the 2008 session of the Society to a close.

The Scottish Society of the History of Medicine

Constitution as revised at AGM of 1999

The Society shall be called "THE SCOTTISH SOCIETY OF THE HISTORY OF MEDICINE," and shall consist of those who desire to promote the study of the History of Medicine.

A General Meeting of Members shall be held once a year on the last day of October or within four weeks of that date, to receive reports and to elect Members of Council and (when required) Office Bearers. The quorum shall be 20 members and decisions shall be taken by a majority. The President shall have a casting vote, and there shall be no proxy voting.

3. The management of the affairs of the Society shall be vested in a Council, comprising a President, a Vice-President (serving as Deputy President and President-Designate), a Secretary, and a Treasurer (the four Office-Bearers), along with nine other members ("Ordinary Members of Council"). The immediate Past President may also be included as a member of Council, as provided below. The quorum at Council meetings shall be six and there shall be no casting vote.

4. The President and Vice-President shall be elected at an Annual General Meeting, to serve normally for a tenure of three successive years, and shall not hold their post for more than three successive years, but shall be eligible to serve again after the lapse of one year if re-elected. In addition, the immediate Past President may remain a member of Council for two years after the end of his or her term of office as President. The Secretary and Treasurer shall be elected at an Annual General Meeting, to serve normally for a tenure of three successive years, and shall be eligible to serve again if re-elected, but should not normally hold office for more than six consecutive years. The names of all candidates for election as Office-Bearers and of their proposers shall be made known to the Secretary before the Meeting at which election is to take place.

5. Any Office-bearer may be required to retire from office by resolution at any AGM, but the proposer and seconder of the resolution shall give a month's notice in writing to the Secretary (or in the case of the Secretary to the President), and the resolution must be pre-circulated to Members in the papers for the AGM.

6. Three Ordinary Members of Council shall be elected at each Annual General Meeting, to serve normally for a tenure of three successive years, and shall not be eligible for re-election at the end of their tenure until a year has elapsed; each year, the three Ordinary Members most senior by date of election shall demit office. If an Ordinary Member is otherwise unable to complete his or her term of office, the Council shall co-opt a replacement to complete the term, and this replacement shall be eligible at the end of the term to be elected for a further full term, despite having already served part of a term.

7. The Council shall have power to co-opt at any time other members who in their opinion are fitted to render special service to the Society. Such co-opted members shall be in addition to those in clause 6 above, and the co-optation shall require the approval of each subsequent Annual General Meeting if it is to continue further.

8. To recognise outstanding service to the Society or to Medical History in general, upon occasion an Honorary Member of the Society may be elected at any Annual General Meeting. Any name proposed (with the name of a proposer and seconder, and details of the case) must be intimated in writing at least three months before the meeting to the Secretary, so that they are included in the pre-circulated Agenda for the meeting. Honorary Members shall pay no subscription.

9. The Annual Subscription shall be reconsidered from time to time by Council and reported to the Society at the Annual General Meeting. The Subscription (or revised Subscription) will fall due immediately following the AGM. A Member whose subscription is outstanding for a full year shall cease to be a member of the Society.

10. The Council shall ensure that full and punctual Accounts are kept for the Society and shall cause to be prepared once a year a Statement of Accounts and a Balance Sheet for the previous year.

11. The Society's funds shall consist of funds in the hands of the Treasurer, together with other sums of money and securities. These funds shall be held by the Treasurer, acting with the President and the Secretary (the Trustees), in trust for the Society's aims and objects, and in furtherance of this purpose the three Trustees shall have the following powers:

- (a) Payments shall be made out of income or capital of the Society as the Trustees shall determine; all cheques shall require the signatures of two of the three Trustees.
- (b) The Trustees may purchase and sell stocks, bonds, securities and other investments.
- (c) The Trustees may delegate the management and investment of the Society's funds to the Treasurer and will consult with him on a regular basis as to the performance of the investments and assets comprising the Society's funds.

12. The Secretary shall keep brief Minutes of the proceedings both of the AGM and of the Council, shall prepare Agenda, and shall conduct the correspondence of the Society.

13. Meetings shall be held at least twice yearly, and the place of meeting shall be in any of the University centres, or elsewhere, as the Council may decide.

14. This Constitution may be amended at any General Meeting of the Society on four weeks' notice of the proposed amendment being given by the Secretary, such amendment to be included in the Agenda circulated for the Meeting. No such alteration or amendment shall have the effect of prejudicing the Society's charitable status in law.

15. The Council may resolve that the purposes for which the Society's funds are held can no longer be carried out by them or could be carried out more efficiently by some other body, fund or institution, and shall so report to a General Meeting of the Society; and if the General Meeting agrees, require the Trustees to make over the Income and Capital of the Society's funds to that other body, fund or institution whose aims and objects most closely resemble those of the Society, and so bring the Society to an end.

