Annual review : 2006 / Wellcome Library for the History and Understanding of Medicine.

wellcome collection

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Annual Review 2006

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“man’s earliest chronicle was his footprint; it told of his coming, his going, and of his doings.”

SIR HENRY SOLOMON WELLCOME (1853–1936),
PHARMACIST, ENTREPRENEUR, PHILANTHROPIST
AND COLLECTOR.

Contents

COVER
Working on paintings in the Wellcome Library's new store.

ABOVE
Detail from advert for Liebig's Fleisch Extract, Ephemera Collection.

Introduction

Looking back on 2006, it is clear that here at the Wellcome Library we have been on a journey. Physically, of course, the collections have been re-sorted, cleaned and moved to new stores or selected for exhibition in Wellcome Collection, and preparations for moving staff offices and equipment gathered pace as the year went on (see page 26). Thousands of online catalogue records have been amended to match the various new physical locations.

The new Library spaces are far better for researchers to work in: open and airy, with more study spaces. And perhaps most importantly, more of the collections, such as 150 000 monographs, are accessible on the open shelves for browsing and use. New viewing facilities and equipment will make it far easier for researchers to view and use our film and audio collections, and there are now viewing and reading rooms for rare materials.

The Library was on a journey too in terms of focus and organisational ambition. It has become increasingly clear that management of born digital content is becoming a mainstream activity. This is shown in our collection of medical websites and the development of the Henry Wellcome archive in web-based form for an online audience (see pages 22–23, 27). Roles that had previously supported the physical delivery of print materials began to be turned towards the support of 24/7 delivery of digital content. Some of these changes are reflected in the staff list, and the new job titles there, as well as in the changes to the organisational structure (page 31).

With our outreach work, we continue to consider ways to reach a wider public audience who would not normally think of using a research library such as ours (pages 20–21).

The Wellcome Library is one that regularly receives research materials from the community of researchers as well as through a programme of acquisitions from auctions, booksellers and dealers. Such acquisitions included a rediscovered portrait of Dorset farmer Benjamin Jesty, who has a claim to be the first person to vaccinate against smallpox (pages 6–7). The types of material we work on continue to be incredibly varied, ranging from patents (pages 16–17) to Arabic manuscripts (pages 10–12). And our readers continued to use the collections in various ways – see Wendy Moore's account of her theory of renowned surgeon John Hunter's self-experimentation (pages 13–15). She drew on the Library's collections while researching her acclaimed biography of Hunter.

Throughout 2006, Library staff have continued to acquire, catalogue, document, advise, lecture, write and make it possible for readers from all over the world to pursue a myriad of research endeavours and commercial enterprises. It gives me great pleasure to record my thanks to each one of the Library staff for everything they have achieved in 2006.

Frances Norton
Head of the Wellcome Library

WELLCOME LIBRARY FACTS AND FIGURES

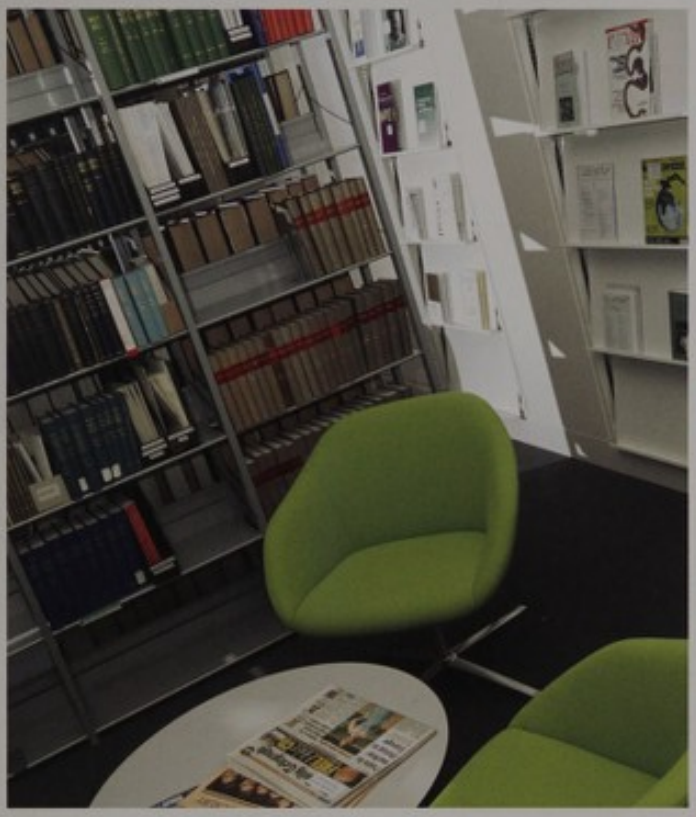
- 104 languages and 277 countries are represented in the collections.
- There are 250 000 prints and drawings, including works by Michelangelo, Van Gogh, Goya, Gillray, Hogarth and Hiroshige.
- The oldest printed book in the Wellcome Library is a 1467 version of Rabanus Maurus's *De sermonum proprietate, sive, Opus de universo*.
- Unusual materials used include water buffalo rib bone, bamboo, silk, gold, silver, palm leaf and human skin.

ABOVE
Flying cranes. Detail. Colour woodcut by Hiroshige, 1858.
ICV no. 47606

Rama Knight

"We are enormously proud of the Wellcome Library and it is splendid to see it back in its permanent home in the Wellcome Building on Euston Road. The collections, the technologies and the staff expertise are world-class and in this new setting will provide even greater access to a unique resource."

Mark Walport, Director of the Wellcome Trust



"The challenges facing a research library at the start of the 21st century are enormous. I am pleased that the Library is embracing those challenges and expanding its reach to enable public as well as scholarly use of its collections. This is especially fitting as the Library now resides in Wellcome Collection – London's only public venue exploring the links between medicine, history and art."

Clare Matterson, Director of Medicine, Society and History at the Wellcome Trust

Major acquisitions in 2006

This year the Wellcome Library acquired more than 5000 items, ranging from manuscripts to electronic databases and film. Here is a selection of notable items acquired during 2006.

Rare Books

The secrets of generation

The anonymous work *Aristotle's compleat masterpiece; or, the secrets of generation* – a guide to human reproduction – was first published in London in the 1680s and went through many editions right into the 20th century. The author may have been William Salmon, a notorious quack doctor and author of many popular medical compilations. Although it was reprinted many times, early editions are now very rare. The Library has purchased a copy published in 1692 from a private seller. The only other recorded copy of this edition is at the University of Chicago.

Archives and Manuscripts

Letter from Moscow

The Library bought an important letter by Dominique Jean Larrey (1766–1842), surgeon-in-chief of Napoleon's armies. Larrey accompanied Napoleon on many of his campaigns and was made a Baron in recognition of his service. While away on campaign he kept up a devoted correspondence with his wife, describing his eventful career. This letter was written in September 1812 from Moscow, shortly after its capture. The French army had just taken part in the bloody and inconclusive battle of Borodino – "the bloodiest battle that I have ever seen and truly we were in great danger".

Larrey's correspondence was collected in the 19th century by the 26th Earl of Crawford, a collection dispersed by his heirs. The Library has located much of this material and reunited it in the public domain, this letter being the latest such item.

Iconographic Collections

Maoist propaganda posters

The sale of Chinese propaganda posters, dating from *c.*1939 to 1990, at Bloomsbury Auctions in September 2006 attracted international publicity. The posters had been collected and preserved inside China, and exported by the family of the collector acting though an American agent. The Library acquired 12 lots, featuring themes such as biological and chemical warfare, health and safety in factories, hygiene in handling and preparation of food, women's roles in newly mechanised industries, protection from infectious diseases, childcare, and the work of the Canadian surgeon Norman Bethune in China. These now join the Library's small collection of Chinese posters and more than 4000 posters from other countries in the Iconographic Collections.

Ephemera

Liebig trade cards

This year the Library acquired a large collection of colour cigarette cards, Liebig trade cards and banknotes – all on medical and health themes. They date from the late 1800s to the 1960s and include two sets of cigarette cards (1914 and 1938) showing exercises, promoting physical fitness to the masses, immediately preceding the two world wars. Ironically from today's perspective, these were given away to encourage smoking. Other cards focus on first aid (1913), air-raid precautions (1938), spas (1902), alchemy (1960), tropical medicine (1956) and infant care (1957). The most unlikely perhaps are six Liebig cards about bilharzia from 1961.

Asian Collections

Paracelsus in Arabic

An 18th-century copy of Paracelsus's *Kitab al-Tibb al-jadid al-Kimawi*, (a translation of his *Arcana Philosophica*) was purchased in 2006. Philippus Theophrastus Aureolus Bombastus von Hohenheim, known as Paracelsus (1493–1541), was an astronomer and alchemist and considered a medical genius of his time. While he was Swiss-born, his works were known among the Christian scholars of the Middle East. His *Arcana Philosophica* was translated into Arabic as early as the 16th century. This is the only Arabic Paracelsus in the Library's collections. Important marginalia (some of them in Armenian) show that the book was actively used as recently as the 20th century, in the territory of modern Syria and Lebanon.

Moving Image and Sound Collections

Amputee rehabilitation films

Wandsworth Teaching Primary Care Trust has donated 44 film, video and sound items originating from Queen Mary's Hospital Roehampton. The material dates from the late 1940s to the 1980s and features many aspects of the Hospital's rehabilitation work with limb amputees, as well as the design and manufacture of prostheses. There is also material relating to thalidomide-affected children in the 1960s and 1970s.

For a list of further acquisitions made during the year, see page 29.

TOP LEFT
Paracelsus's *Kitab al-Tibb al-jadid al-Kimawi*, 18th-century translation.

TOP CENTRE
Trade card for Véritable Extrait de Viande Liebig.

TOP RIGHT
Letter from Dominique Jean Larrey, Napoleon's surgeon-in-chief, 1812.

ABOVE RIGHT
'Look mummy has no hands'. Video recording, UK, *c.*1960.
Moving Image and Sound Collections 2100V

ABOVE LEFT
Maoist propaganda poster.

RIGHT
Aristotle's compleat masterpiece, 1692. Detail.

Return of the farmer

One of the Wellcome Library's major acquisitions in 2006 was a life-size oil painting of a Dorsetshire farmer, Benjamin Jesty. It is not mainly for his agricultural skills that Jesty is of interest to posterity: he has a claim to be the first person to have practised vaccination against smallpox.

The first vaccination is popularly thought to have occurred in 1796, when Edward Jenner, a general practitioner in Berkeley, Gloucestershire, transferred or 'inoculated' cowpox (in Latin *Variolae vaccinae*, hence vaccine) from the hand of a milkmaid to the arm of a boy as a protection against smallpox. Jenner's work is commemorated in many portraits and statues.

Yet 20 years previously, Dorsetshire farmer Benjamin Jesty (1736–1816) performed his own, well-documented experiment with vaccination. He had not only noticed that naturally acquired cowpox protected against smallpox, as others had before him (notably John Fewster, a Gloucestershire surgeon, in 1768) but had – uniquely – followed up this idea in 1774 by what seemed to many people a bizarre and repulsive action: with the aid of a knitting needle, he extracted pustular matter from an infected cow and inserted it into the arms of his wife and two sons, hoping that such a procedure would replicate the naturally acquired infection. He did not insert the fluid into himself, as he had had cowpox in his youth, through his work with cattle, and so was already protected.

"He did not see why he should dress better in London than in the country"

Jesty's immediate reward for this risky experiment was derision and disgust. However, after the publication of Jenner's *An inquiry into the causes and effects of the variolae vaccinae* in 1798, and subsequent questions in Parliament about this important development in national safety, Jesty's strange action began to be seen in a different light. Eventually, in 1805, the then elderly countryman was invited to London by the officers of the Original Vaccine Pock Institution. The Institution wished to interrogate Jesty about his experiment from 30 years before, with the intention of setting him up as a counterweight to Edward Jenner, one with prior claims to the glory and riches associated with the discovery.

When his August 1805 visit to the Institution (on the corner of Broadwick Street and Poland Street in Soho) came, his family tried to persuade him to dress in a more up-to-date fashion. But he refused, saying that "he did not see why he should dress better in London than in the country". Regardless of attire, he made a good impression.

"Great Strength of Mind... made the Experiment from the Cow"

Benjamin Jesty's epitaph

The verbal evidence of Jesty's interview with 12 examiners of the Institution was published in the *Edinburgh Medical and Surgical Journal*, and was entirely positive, confirming Jesty as the deserving recipient of public acclaim. The Institution rewarded him not merely with words: a pair of gold lancets and a testimonial were bestowed on him as a token of its admiration, and his portrait was commissioned from a well-known society portrait-painter, Michael William Sharp. A former pupil of Sir William Beechey, Sharp was much recommended by King George III as a reliable man to capture a likeness, and his studio in Great Marlborough Street was not far from the Institution. While Mrs Sharp played the piano, the painter captured what was later described in Jesty's epitaph as the "Great Strength of Mind" with which he "made the Experiment from the Cow".

The portrait subsequently passed to Jesty's descendants. Until their deaths in 1919 and 1920 respectively, it was owned by Frank Ezekiel Pope and Fanny Pope of Chilfrome, Dorset: Frank Pope was a son of Jesty's granddaughter Edith. Their estate was left to their nephew Francis William Pope, whose family had emigrated to the Cape Colony, South Africa, in 1878. In 1934, he came to England to sort out the Chilfrome estate and found the picture in a barn and badly torn. He had it restored in London and arranged for its transportation to South Africa. There it remained for some 70 years, like most privately owned works unpublicised and inaccessible, adorning a farmhouse in a vast estate in the Eastern Cape.

In 2004, through tenacious research, its whereabouts were discovered by Patrick Pead, an English microbiologist with a longstanding interest in the Jesty story, who also revealed the vivid early history of the portrait.

It is not surprising that the portrait, now acquired by the Wellcome Library, has suffered from its years in farm buildings. What is remarkable is that it has survived at all. When it has been stabilised and cleaned, it deserves to be displayed in an exhibition on Jesty and Jenner, which could raise the question why the idea of vaccination occurred to two people in two different counties in the west of England within 20 years of each other, and, until evidence appears to the contrary, to nobody else. It would illustrate the fact that 18th-century medicine and surgery were the province of clergymen, farmers, housewives and mechanicals, not just of specialist practitioners such as doctors and surgeon-apothecaries. In that context it should be less surprising that one of the most successful medical techniques arose not from a prestigious medical academy in one of the world's great cities but from a Dorsetshire farmhouse.

By **William Schupbach**, Iconographic Collections Librarian at the Wellcome Library.

Jesty's portrait is in the Iconographic Collections, which comprise more than 250 000 prints, drawings, paintings, photographs and other media, ranging in date from the 14th century to the present. Further information on accessing the Iconographic Collections is available at ***http://library.wellcome.ac.uk****.*

TOP RIGHT
Benjamin Jesty. Oil painting by M W Sharp, 1805.
Wellcome Library no. 654136i

CENTRE RIGHT
A comparison between small-pox and cowpox pustules on the 12th and 13th days of the disease. Chromolithograph, 1896 after G Kirtland. Detail.
Wellcome Library no. 20182i

BOTTOM RIGHT
Edward Jenner vaccinating a boy. Oil painting by E-E Hillemacher, 1884.
Wellcome Library no. 45436i

John Dee, the great librarian

John Dee was an influential Elizabethan polymath whose interests ranged from law, through magic and alchemy, to communing with angels. However, his great passion was his library, one of the greatest collections of 16th-century Europe. This year the Wellcome Library acquired a rare book on the value of demonstration that was once in Dee's Library.

John Dee (1527–1609), mathematician, astrologer and antiquarian, was a fascinating Elizabethan. Born in London and an only child, Dee was educated at Chelmsford Grammar School, then St John's College, Cambridge, where he claimed to have studied for up to 18 hours a day. Later, he entered Louvain University, Belgium, where he continued to study mathematics, geography, astrology, astronomical observation and, "for recreation", civil law.

Blessed with a brilliant mind, Dee was an accomplished and influential scholar, and one of great breadth. In fact, his interests spanned both the natural and the supernatural – in his time, the two were scarcely distinguishable. Indeed, Dee was a man of curious contrasts: a fellow of Trinity College, Cambridge, and a man who communed with angels; an adviser to Queen Elizabeth I who was charged with treason against Queen Mary; and a pious Christian who dabbled in the 'black arts'.

After his death, Dee's reputation plummeted, perceptions dominated by unflattering accounts of his angelic conversations. He was condemned as a magician and occultist. Only in the latter part of the 20th century was he rehabilitated and the extent of his intellectual achievements fully appreciated.

The early years

After time at leading academic centres in Europe, Dee returned to England in the mid-1550s. For the next 30 years, he was prosperous and productive, even travelling to France to buy several specially made laboratory vessels for his practice of alchemy. When Elizabeth I ascended to the throne, he became a trusted adviser – it was Dee who selected the date for her coronation. He was an important figure in the Elizabethan exploration of the New World, both practically, with his mathematical skills applied to navigation, and ideologically: he was a strong proponent of imperialism, indeed coining the term 'the British Empire'.

Yet Dee was never far from controversy. As early as 1555, he was arrested and accused of creating horoscopes for Queen Mary and Princess Elizabeth. One of his accuser's children died and a second was struck blind, leading to rumours of witchcraft. While his co-defendant was burnt, Dee managed to evade punishment. His entire life was spent on the boundaries of respectability.

But it was in the 1580s that Dee's life took its most dramatic turn. He became obsessed with the idea of talking to angels. Dee appears to have genuinely believed that the route to greater knowledge lay in these communications, routed through intermediaries such as Edward Kelley. It is not clear what Kelley believed, though he transcribed many books supposedly revealed to him by angelic voices.

In 1583, a Polish nobleman, Albert Laski, persuaded Dee and Kelley to travel to Poland. Laski, though, was bankrupt and without influence. After six years wandering Europe, and after splitting with Kelley, Dee returned to England in 1589. Finding his house and belongings ransacked, Dee turned to Elizabeth for help. She eventually made him Warden of Christ's College, Manchester (now Manchester Grammar School). In 1605, he returned to London, spending his final years in poverty.

Librarian and antiquarian

Throughout his life, Dee's great passion was for books. He called the dispersal of the monastic libraries a tragedy for learning and a national disgrace. His unsuccessful appeal to Queen Mary for national efforts to recover these manuscripts led him to take on the task. Buying books originally as a Cambridge undergraduate, Dee did not restrict himself to British acquisitions, as evidenced by book sources spanning Antwerp to Venice.

RIGHT
John Dee performing an experiment before Queen Elizabeth I. Oil painting by Henry Gillard Glindoni (1852–1913).
Wellcome Library no. 47369i

BELOW LEFT
De demonstratione libri quinque by Bartolommeo Viotti, 1560. Owned and annotated by John Dee.

BELOW RIGHT
John Dee. Line engraving by F Cleyn, 1658.
Wellcome Library no. 2423i

At its height, his was one of the greatest private libraries of 16th-century England, exceeding Oxford or Cambridge universities and the surviving ecclesiastical libraries. It was undoubtedly the finest in England, and perhaps the second greatest in Europe. The systematic care he took in his reviews suggests a dialogue with the text, and notes in the margins or on the flyleaves, in his elegant italic hand, are often autobiographical. Dee claimed he had owned 3000 books and 1000 manuscripts. He must have loved to have his library about him – travelling to Poland he packed about 800 books.

Although he was not a medical doctor, Dee's library contained many medical books. The Wellcome Library recently acquired a rare book, *De Demonstratione libri quinque* by Bartolommeo Viotti, with a title page signed by Dee in 1561, his famous marginal summaries and text underlining. The work itself is cast in the form of a dialogue, and discusses the value of demonstration and seeing with one's own eyes, and makes an attack on scepticism – a particularly current topic in light of Vesalius's arguments in *De Humani Corporis Fabrica*. Viotti cites Galen at length, and follows his approach to reasoning. Francis Bernard, apothecary and physician (1628–1698), later owned this book, and it was subsequently purchased by George Parker, Earl of Macclesfield and President of the Royal Society (1697–1764).

Dee's ownership of *De Demonstratione* and his marginal annotations reveal his interest in the debate on the importance of demonstration and self-experimentation. The Library holds three other printed books from Dee's collection, a manuscript of his alchemical notes and iconographic material featuring Dee.

Sadly, the fate of Dee's great library mirrored that of the man himself. Many of his books were pillaged from his home during his ill-fated trip to Poland. Some were taken by former pupils, such as Nicholas Saunders, and have found their way into the collections of the Royal College of Physicians.

In later life, Dee was constantly short of money. During famines of the 1590s, Dee's Welsh cousins sent cattle to feed the family, and John Pontois, who was to become his heir, assisted by sending barrels of rye. Dee passed on his books to Pontois, who retained them until his own death, though giving or lending books to scholars. Pontois recorded a death's head on 26 March 1609, confirmed by Anthony Wood's note that Dee had died in Bishopsgate Street, London, where Pontois lived. Dee the great librarian died in poverty and obscurity.

Reputation and legacy

Dee's reputation did not fare well after his death. Méric Casaubon's record of Dee's 'angelic conversations' with a medium (*A True & Faithful Relation of what Passed for Many Yeers between Dr. John Dee and some Spirits*), published after Dee's death, distorted his reputation. But his renown as a mathematician, based on his influential 'Mathematicall praeface' to Henry Billingsley's 1570 translation of Euclid, endured well into the 17th century.

In later years, Dee's standing was to plunge further with the publication in 1834 of *Lives of the Necromancers*, by journalist and political philosopher William Godwin. Serious interest revived a few years later, however, with Halliwell's edition of Dee's 'Diary' and Fell Smith's 1909 scholarly counter to earlier biographies. Taylor's *Tudor Geography* in 1930 highlighted Dee's significance in educating Tudor navigators, and showed him providing the precedent for Britain's North American settlement. Calder's 1952 PhD thesis was perhaps the first serious study leading to a re-evaluation of Dee's place in the English Renaissance. *The Queen's Conjuror: The science and magic of Dr Dee*, written by Benjamin Woolley, was published in 2001.

As for his beloved library, it is now widely dispersed – though the British Library and Corpus Christi College, Oxford, hold many manuscripts, and the Royal College of Physicians has the largest single collection of his printed books.

By **Diane Smith** with **Julianne Simpson**, Rare Books Librarian at the Wellcome Library.

De Demonstratione libri quinque *is in the Rare Books collection, which includes approximately 70 000 pre-1851 rare books including c.600 incunabula (books printed before 1501) and c.5000 books from the 16th century. All aspects of medical science and practice are represented, and there are wide and varied holdings in allied subjects.*

Magic letters

In 2006 the Wellcome Library acquired an 18th-century Turkish manuscript containing *Shams al-Ma'arif wa Lata'if al'Alwarif*, a widely read treatise on talismans, magic squares and occult practices. It has been used since the 13th century to decode obscure texts and abbreviations found in books on magic, medicine and alchemy. At one time banned as heresy, the work is still read and studied today.

An 18th-century Turkish manuscript that contains a treatise of the 13th-century Arabic author al-Buni is among the latest of the Wellcome Library's Asian Collections acquisitions. Known under the title *Shams al-Ma'arif wa Lata'if al'Awarif*, which literally translates as 'Sun of Knowledge and Sayings of Wisdom', this is the best-known reference book on magic letters and their secrets in Islam.

Islamic books on magic and medicine, like everywhere in the world, used abbreviations and arcane signs to restrict knowledge to members of closed 'professional' groups, such as doctors, physicians and alchemists. *Shams al-Ma'arif wa Lata'if al'Awarif* was used from the 13th century to help to understand obscure texts and decipher abbreviations found in books on magic, medicine and alchemy. The book's remarkable longevity stems from its explanation of magical wisdom, which people have trusted and believed to work.

Medieval Islamic medicine knew many thousands of recipes but many of them simply did not work. Yet they continued to be included in practitioners' manuals out of respect to their inventors – the origins of such recipes were often traced back to the luminaries of the past, such as Hippocrates, Galen and Rufus of Ephesos. The so-called *mujarrabât* – the 'experience-tested recipes and/or remedies' – were of great value among Islamic practitioners. They were collected separately and on many occasions they were encrypted with arcane letters or signs for which the *Shams al-Ma'arif wa Lata'if al'Awarif* could often provide an explanation.

Shams al-Ma'arif wa Lata'if al'Awarif also remains the seminal work on esoteric arts and theurgy, a form of 'divine-working' that describes magical rituals to invoke supernatural powers. This book is one of the most widely read medieval treatises on talismans, magic squares and occult practices. At one time banned by 'orthodox' Muslims as heresy, people still read and study it. Its importance is reflected in its continual copying: during the Middle Ages it was transcribed repeatedly.

LEFT
Detail from *Shams al-Ma'arif wa Lata'if al'Alwarif*, 18th-century.

RIGHT
A mosque in Cairo. Coloured lithograph by Louis Haghe after David Roberts, 1849. Al-Buni's work was influential throughout the Arab world, despite being banned by 'orthodox' Muslims as heresy.
Wellcome Library no. 33809i

Books and bookmen

Like all medieval literatures, Arabic literature (until the 19th century) knew almost no fiction. The writing was used to preserve and to disseminate factual knowledge, gaining of which was a prerequisite for becoming a perfect Muslim. This search for knowledge predetermined the attitude of the Islamic readers to the written text. On many occasions books were valued because of their content and reliability, proven by their age, rather than the fame of the writer. An Islamic scholar in the Middle Ages would gain respect from telling peers: "I read a very old manuscript about subject X," just as today's scholar would receive credit for saying: "I read a paper by well-known author Y".

Plagiarism as we now view it did not exist either, and people often copied others' works. Plagiarism in the Middle Ages was not regarded as copying a chapter but as copying the way the book's chapters were arranged. The same or very similar chapter often occurs in several different books because information presentation was the added value – actual content was considered to be in the public domain. Equally, the title was not always informative in the modern sense of this word – often it did not convey any information on the actual book content. In many instances this was an indication on the genre of the work, used for the subsequent assignment of the work on the library shelves. In the case of al-Buni's treatise the title *Shams al-Ma'arif wa Lata'if al'Awarif* ('Sun of Knowledge and Sayings of Wisdom') indicated that this was the 'carefully selected anthology' (a 'repository') of wisdom.

The author of *Shams al-Ma'arif wa Lata'if al'Awarif* was Ahmad ibn 'Ali ibn Yusuf al-Buni (d. 1225), an Arab mathematician, Sufi (Islamic mysticist) and writer on the esoteric value of letters and topics relating to mathematics, sorcery and spirituality. We have little detail of his life. It is believed that he acquired knowledge from his contemporary Sufi masters. Al-Buni's works on traditional healing remain a point of reference among Yoruba Muslim healers in Nigeria and elsewhere in the Muslim world. He left a list of further books that he had written but unfortunately few of them have survived.

In around 1200, al-Buni showed how to construct magic squares, but these were unlikely to have been his own original innovation. Scholars have found many references to the application of magic squares in astrological calculations, and it may be that al-Buni used his magic squares to represent the planets in some form of divination. Magic squares continued to fascinate. In 1300, Byzantine scholar Manuel Moschopoulos based his own work on al-Buni's mathematical treatise on magic squares but completely omitted the Sufi mysticism, which was inconsistent with the Greek Orthodox perception of the world.

Al-Buni's 13th-century Islamic world

Nevertheless, magic symbolism, carved in stone or engraved on metal, has fascinated people for more than 4000 years across many cultures. Often worn as talismans, people believed these objects had astrological and divinatory qualities, and that wearing them would ensure long life and prevent disease. Magic squares were known to Islamic mathematicians from the seventh century. By the 13th century the Islamic scholars had active contacts with India and, with their desire for learning, were able to develop their understanding of mathematics and astronomy.

Travel, wars, trade, book exchange and, in addition, the Hajj pilgrimage to Mecca made scholarly collaboration in the Islamic world easier by bringing people and their ideas together. Arab scholars were not only sharing new understanding among themselves and learning from other regions – their scholarship was also spreading outwards, helped by the classical Arabic language. This language used by the Arabs and non-Arabs gave us terms and words like 'algebra', 'algorithm', 'cipher' and many others. The notions of Arab alchemy were eventually taken up across Europe, inspiring alchemists such as Roger Bacon, the first true alchemist in medieval Europe. Bacon introduced the empirical method to Europe, strongly influenced by his reading of Arabic writers.

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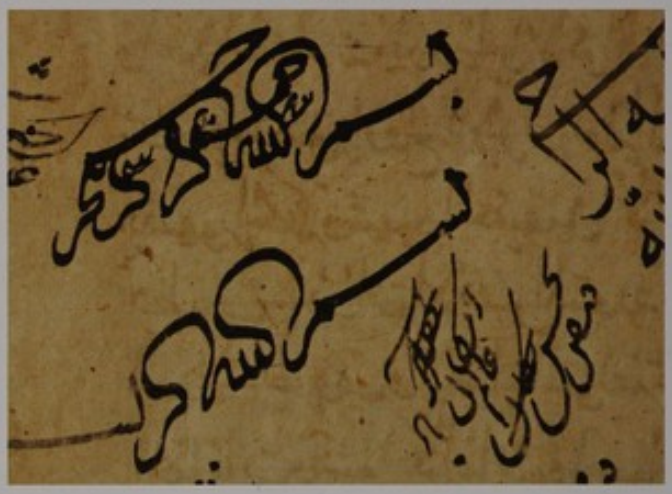

While al-Buni was writing his famous book, 13th-century Europe was seeing a huge increase in the rate of radical new inventions – several enabled by an improved understanding of mathematics, and with thanks to scholars on the other side of the world. While much advancement was native to Europe, cross-cultural exchanges through trading networks with the Arab world and China enhanced European innovation. Many inventions were not radical in themselves but their application rebalanced political and economic power towards Europe.

Advances in astronomy, for example, enabled significant ocean navigation when combined with shipbuilding. One such advance, the astrolabe, was the main instrument of navigation until the invention of the sextant in the 18th century. The Islamic world used this device primarily for astronomical studies in locating and predicting the positions of the sun, moon, planets and stars, for identifying the direction of prayer, surveying and in triangulation. Such navigational advances, in the hands of Europeans, led eventually to Europe's prominence in world economic trade.

These advances, however, became possible due to another 'hidden weapon', the 'vowel script'. European scripts, based on Greek and Latin, rendered both consonants and vowels. By contrast, the Arabic script rendered only consonants and long vowels, while the short vowels were omitted (so 'like' would be transcribed 'lk', just as today's text messaging might write 'lv 4u'). This made the Arabic script less convenient for the quick and correct transfer of information.

This advantage in knowledge transmission was further enhanced by innovations such as Gutenberg's printing press. Print copies ensured a wide spread of knowledge, opening society to new ideas and strengthening the European power base, capable of dominating other cultures through a huge reservoir of information and know-how.

By **Nikolai Serikoff**, Asian Collections Librarian at the Wellcome Library.

Shams al-Ma'arif wa Lata'if al'Awarif *can be accessed from the Asian Collections, which comprise some 12 000 manuscripts and 4000 printed books in 43 different languages. The collections include over 1000 manuscripts written on palm leaves, and others transcribed on silk, ivory, metal, bone, bamboo and tree bark. Further information on accessing the Asian Collections is available at* ***http://library.wellcome.ac.uk****.*

ABOVE
Details from *Shams al-Ma'arif wa Lata'if al'Alwarif*, 18th-century, showing the magic squares.

The knife man

Did the 'father of modern surgery', John Hunter, perform some of the experimental work for his *Treatise on the Venereal Disease* on himself? Wendy Moore, biographer of Hunter, controversially suggests that he did.

The ingredients are all there: sex, celebrity and scandal. And the controversy over an experiment conducted nearly 250 years ago still retains some of the intensity of the latest gossip on today's film and television stars.

So it was with some trepidation that I waded into the debate over the experiment on venereal disease carried out in 1767 by the celebrated surgeon and anatomist John Hunter. With sensitivities over the identity of the experiment's subject still running high, I knew I might be in for a rough ride.

> *"Like most surgeons who specialised in treating sexual diseases...Hunter firmly believed that syphilis and gonorrhoea were simply different stages of the same condition."*

Since there were no paparazzi on hand to record the moment that Hunter plunged his lancet into an unidentified penis, the controversy may never finally be settled. But the evidence that can be garnered from the archives of the Wellcome Library and libraries elsewhere certainly convinced me that the subject of Hunter's controversial experiment could be nobody but himself.

Most of the key details are not disputed. At the age of 39, rising in his chosen career as a surgeon and engaged to marry a talented and attractive poet, John Hunter decided to test whether syphilis and gonorrhoea were one and the same disease. Like most surgeons who specialised in treating sexual diseases – and as these were endemic in Georgian London, most surgeons did – Hunter firmly believed that syphilis and gonorrhoea were simply different stages of the same condition.

Hunter himself described the experiment he performed on a Friday in May 1767 in his usual graphic style, although the tract in which the event is related, his *Treatise on the Venereal Disease*, would not appear for another 19 years. "Two punctures were made on the penis with a lancet dipped in venereal matter from a gonorrhoea; one puncture was on the glans, the other on the prepuce," he wrote. "This was on a Friday; on the Sunday following there was a teasing itching in those parts, which lasted till the Tuesday morning."[1]

Over the course of the next four pages, he described his observations as he monitored the progress of the disease almost daily for the next three years. It was a classic example of Hunter's innovative scientific approach to medicine. He had formed a hypothesis, he had 'tried the experiment' as he famously urged his pupil Edward Jenner to do, and he recorded his findings.

Unfortunately for Hunter, and the rest of the scientific world at the time, the experiment contained a fatal flaw. The patient from whom he had taken the venereal matter evidently suffered not only from gonorrhoea but also from syphilis – a relatively common occurrence – and so when syphilitic symptoms appeared Hunter erroneously concluded that the two diseases were indeed the same. It would take another 25 years before Scottish surgeon Benjamin Bell proved him wrong, and a further 45 years before this fact was confirmed – by experiments on 2500 unwitting patients – and popularised by Philippe Ricord in France.

Unfortunately for Hunter's biographers, and medical historians in general, the experiment contained another flaw: the surgeon's failure to name the subject of his controversial experiment. Nowhere in any of his written works did he identify the person on whom the test had been performed. He did not describe the experiment in the first person – as he often, but not always, did when describing his own medical conditions – but neither did he describe the experiment in the third person, as some have suggested. Rather he related the episode in an impersonal, deliberately concealing style that has fuelled questions to this day.

Significantly, the subject of the experiment created no particular stir in Hunter's time. Partly this was because the conclusion – that syphilis and gonorrhoea were the same – was seen as far more important to contemporary surgeons than the name of the poor victim. Partly this was because the 357-page treatise contained so many other more provocative – and more accurate – claims, such as Hunter's insistence that masturbation was harmless, his liberal advice on sexual impotence and his view that mercury was largely ineffectual in treating gonorrhoea.

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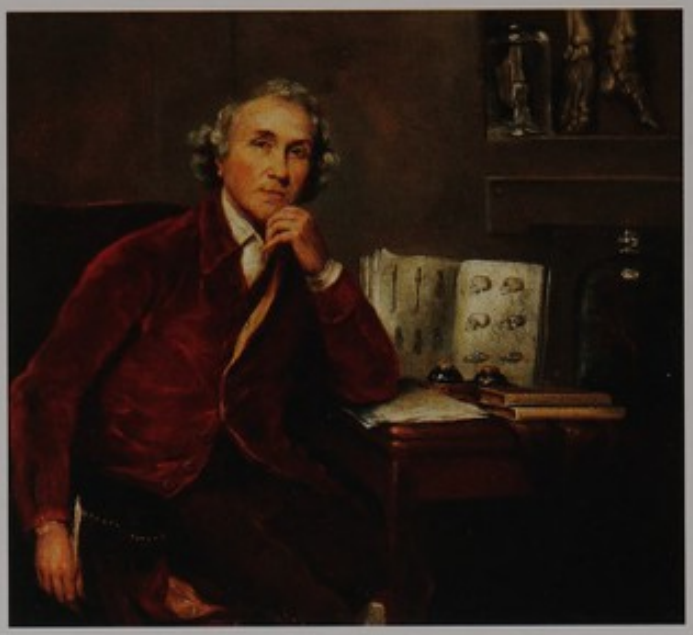

LEFT
John Hunter (1728–1793), surgeon and anatomist. Oil painting after Sir Joshua Reynolds.
Wellcome Library no. 45666i

RIGHT
Page from the Wellcome Library's copy of *A treatise on the venereal disease* by John Hunter, 1786.

Indeed, Hunter related another key experiment, in which he gave pills made from bread to some patients with gonorrhoea, and mercury to others, in what must stand as one of the earliest examples of a trial testing placebo against an established therapy. The results, he concluded, were little different.

But chiefly, the lack of interest in the subject of the experiment was due – I believe – to the fact that this was no mystery to Hunter's contemporaries. Although he did not want to offend polite society by stating this detail, it is plain that Hunter's students and fellow surgeons were well aware that he had performed the experiment on himself.

Two sets of notes of his lectures taken independently by two pupils confirm this view. In 1787, a pupil named Twigge recorded Hunter describing the experiment in the following terms: "It has frequently been a subject of dispute whether the matter of a gonorrhoea and a Chancre essentially differ, or whether they are the same, but as I have produced in myself a Chancre from the matter of a Gonorrhoea, that matter may now be easily settled."[2] Twigge's notes are preserved at the Royal College of Surgeons's library. Almost exactly the same words – "I have produced in myself a chancre by matter from a gonorrhoea" – are found in a set of notes taken by another pupil, named Brooks, which are kept in the Edward G Miner Library of the University of Rochester Medical Center in New York.[3]

"There is no evidence he procured a volunteer ...he had no hospital patients at the time, he would not have risked his livelihood by hoodwinking a private patient and it is implausible that he could have kept a pauper secreted in his home for three years."

Although other sets of lecture notes survive (at the Wellcome Library, the Royal College and elsewhere), none that I have seen relates the venereal disease experiment. But there are two further sources, published within living memory of Hunter, which report as acknowledged fact that the surgeon was his own subject.

When Hunter's collected works were published in 1835, the editor, a surgeon named George Babington, stated categorically that Hunter had performed the experiment on himself: "The author inoculated himself with the matter of gonorrhoea".[4] In the same work, Hunter's early biographer Drewry Ottley, a physician trained at Hunter's former workplace of St George's Hospital, reported that "in relating his own case, where secondary symptoms had ensued on inoculation with the matter of chancre", the surgeon joked about the experiment.[5]

The fact that this episode caused more laughter than surprise was because, like so many medical innovators, Hunter was known as an indefatigable self-experimenter. At one point he fed himself with madder root to see whether it turned his urine red, while on another occasion he dosed himself with laurel water to test the effect of the poison.[6,7] Hunter even made an explicit reference to self-experimentation, perhaps specifically to the venereal inoculation, in an article – reportedly sanctioned by him – in the *European Magazine* in 1782, which stated: "Though an enemy to operations on others, he was regardless of himself, and exposed his person to all the active and artificial powers, by which he might ascertain the properties, and trace the effects of medicine on the human frame."[8]

Later biographers, including Kobler in 1960[9] and Dobson in 1969,[10] accepted without question that Hunter had performed the experiment on himself, while Peachey in 1924[11] coyly skirted the issue by suggesting – without evidence – that Hunter had 'accidentally' inoculated himself. It was only in 1977 that the supposition emerged for the first time that Hunter had not performed the experiment on himself, in an article by George Qvist, later expanded in his biography in 1981.[12,13] This proposition was taken up by other Hunter scholars, including W J Dempster, in the *Lancet* in 1978.[14]

In comments that perhaps said more about contemporary sexual politics than 18th-century liberal values, Qvist dismissed the notion that Hunter gave himself syphilis as "preposterous" and urged that "the stigma of this diagnosis should be expunged from his image", while Dempster declared the idea "beyond belief". Based on the principle that it was inconceivable that a man of Hunter's intelligence would have exposed himself to such dangers, they argued that he must have conducted the trial on a hapless member

of his household, or in Qvist's words "one of the many destitute outcasts of subnormal mentality who roamed the streets of London at that time".

Certainly Hunter performed experiments on others, both paid volunteers and unknowing patients. But there is no evidence he procured a volunteer in this instance and every likelihood he did not; he had no hospital patients at the time, he would not have risked his livelihood by hoodwinking a private patient and it is implausible that he could have kept a pauper secreted in his home for three years.

It is also true that there were no recorded signs of syphilis in the post mortem on Hunter performed by his brother-in-law, Everard Home – though Home's flagrant plagiarism of his mentor's work does not lend weight to his veracity. Most probably Hunter was lucky – like two-thirds of sufferers – in that the disease did not return. And unless further evidence emerges to the contrary, neither should the suggestion that anyone other than himself was the subject of his venereal disease experiment.

Wendy Moore is the author of *The Knife Man: Blood, body-snatching and the birth of modern surgery* (Bantam, now available in paperback), a biography of John Hunter.

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Victorian patents

A Wellcome Library project to catalogue 158 volumes of patents gives a fascinating insight into health concerns of the past and novel ideas proposed to overcome them.

Patents are believed to date back to ancient Greek times, but their modern conception originated in Italy in 1474. They were adopted in England in 1623 with the Statute of Monopolies, which stated that patents could only be issued for "projects of new invention". The requirement for a written description of the invention was developed by lawyers during Queen Anne's reign (1702–14) and formed the basis for modern English patent law. While the patent system survived the Industrial Revolution, by the mid-19th century it had become 'unfit for purpose'. The clamour for reform resulted in the Patent Law Amendment Act (1852) and establishment of the Patent Office.

In August 2006, the Wellcome Library completed an 18-month project that selectively catalogued a set of 158 volumes of patents (a volume contains between a dozen and about 90 individual patents). These were published by the Great Seal Patent Office in Holborn, London, during the latter half of the 19th century and encompass a retrospective reprinting of old patents from 1629 onwards, the collection coming to an end in 1875.

"A recipe for 'female pills' in 1743 included ground topaz, sapphires and wine and was to be 'set in a dunghill for…two months'"

The patents acquired fall into five broad subject areas: smoke prevention (showing concern over air pollution – particularly after the 1840s); baths (at a time when the average home probably had little more than a tub for use on Friday nights); cooking and preserving (attempting to avoid food poisoning in an era before domestic refrigeration); sewage disposal (also purification, deodorisation and potential recycling of human waste as agricultural manure); and, most importantly to the Wellcome Library, medical and surgical patents.

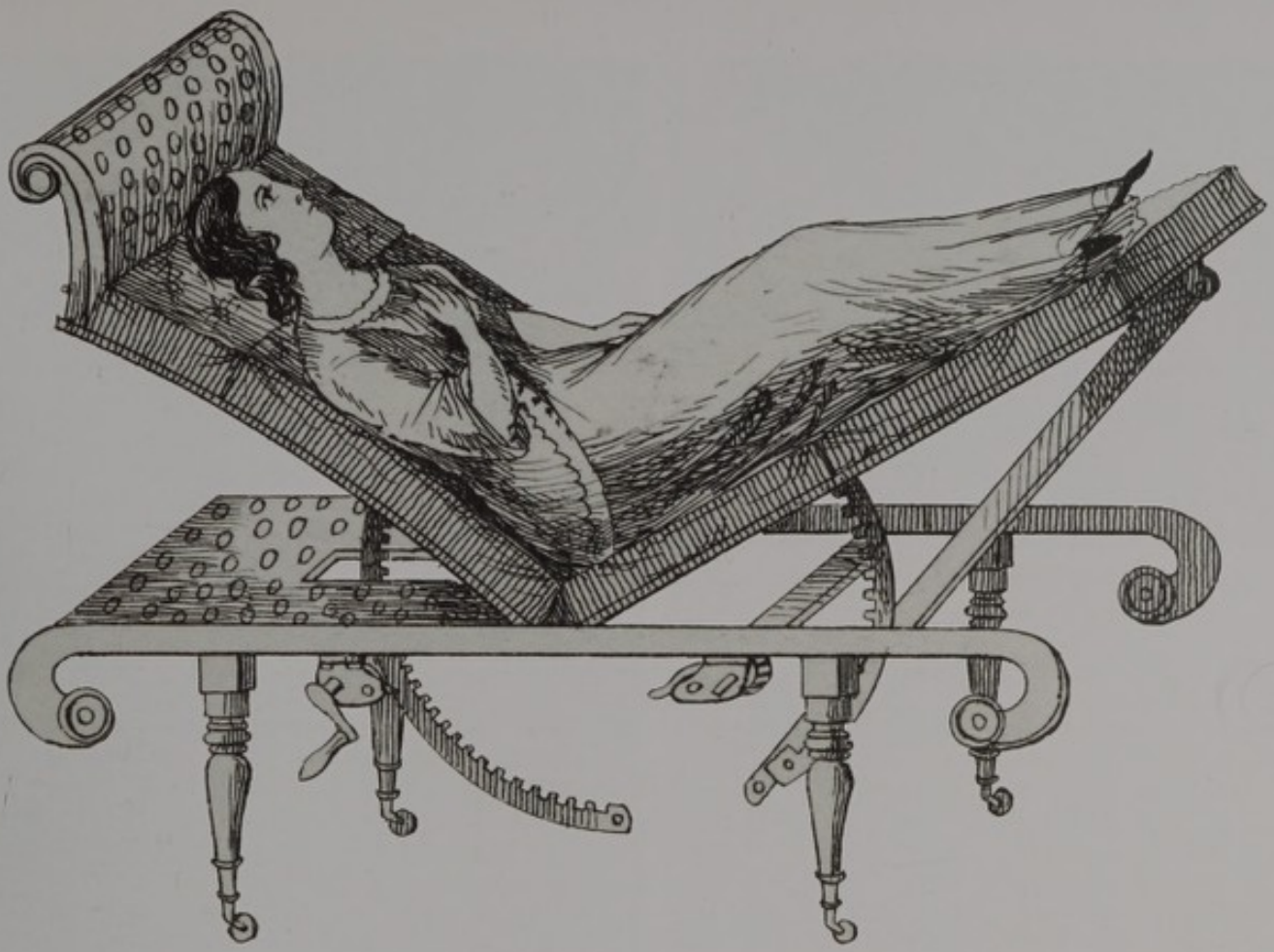
The medical patents date back to the first half of the 18th century and offer ideas for new apparatus and cures. The early medicines usually included herbs and plants with minerals, possibly some chemicals and alcohol (beer, wine or brandy) and were referred to as medicinal compounds, draughts and preparations. The patents typically list the ingredients but are vague on how to administer the product or what it actually does to the patient. A recipe for "female pills" in 1743 included ground topaz, sapphires and wine and was to be "set in a dunghill for… two months" after which herbs, roots, isinglass and "salt of vipers" would be added. The result would be a "purging stomatick and anti-hysterick", which was probably prescribed for menstrual problems.

Ingredients were often very imaginative but of questionable efficacy. A 1754 patent claims to cure "venereal injuries" (sexually transmitted infections) with a mixture of jalap, salt of nitre, amber, sena, tolu, nutmeg, rhubarb, tartar and quicksilver, "well mixed with syrup of marshmallows", and was to be taken daily. A 1755 cure for epilepsy contained the more sinister "pulvis humani cranum" or ground human skull. Opium was widely used in medicines. In 1830 it was combined with horehound, liquorice, squill root, brandy, honey, extract of poppies to cure coughs, colds, asthma and consumption.

Claims about a medicine's curative properties were rather all-encompassing. In 1752 an oil made from "hard substances… to be had near river sides…particularly in Warwickshire" was supposed to cure gout, tumours, sciatica, fistulas, ulcers, leprosy, bruises, sprains, dropsy, stone and gravel, sterility, impotency and consumptions. Others sounded more plausible: a 1747 mixture of turpentine, oils and bay leaves for burns, for instance.

"We have numerous patents for devices to raise and support bed-ridden people"

New therapies were proposed: "galvanic influence or galvanic electricity" claimed to cure diseases as it was "brought into action by the natural fluids of the body" inside the rectum, bladder or uterus (1834); electricity as a therapeutic medium was proposed during the 1850s; electric socks (1873); and Darlow & Seymour's Magnetic Compound (1866). Anaesthetics were patented, such as ether "for surgical purposes" in 1846 and a localised freezing process (immediately prior to surgery) in 1854.



The Victorian invalid occurs regularly through literature of the time. We have numerous patents for devices to raise and support bed-ridden people (1872), special beds for invalids (1828), tables for them to eat from (1872), devices to move them about and cups with which to feed them while they were still lying down.

Given the Industrial Revolution was changing British life in a major way during this period, with many people performing dangerous and heavy manual work in factories, it is not surprising that there are a significant number of patents for artificial limbs and various types of truss. Other devices included syringes for administering enemas, stomach pumps, inhaling apparatus (for inhalation therapy – popular in the 1860s), "bandages for females" (sanitary towels – in 1868), hearing aids (as early as 1836), artificial eyes, bandages, plasters and respirators (a mask covering the mouth and nose "for breathing in impure atmospheres" such as mines or certain types of factory perhaps).

By **Stephen Lowther**, Assistant Librarian – Cataloguing at the Wellcome Library.

These patents can be accessed from the Wellcome Library's medical ephemera collection. Further details on how to access the collections are available from ***http://library.wellcome.ac.uk****.*

A.D. 1852. October 30. Nº 578.

KIRBY'S Provisional Specification.

FIG. 1.

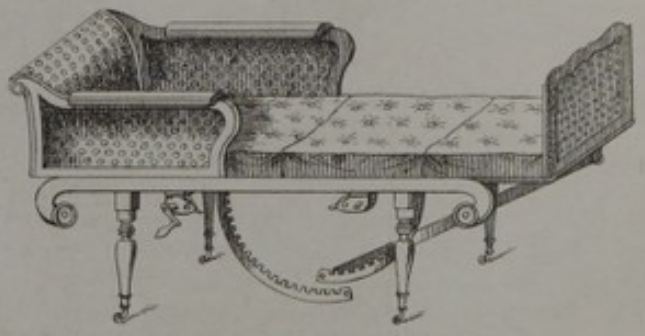


FIG. 6.

ABOVE AND RIGHT
Patent specification of Edmund Adolphus Kirby: adjusting couch for medical, surgical and general purposes, 1854.
Bound patents, Pat. vol. 22

Rise and fall of the bodysnatchers

Death comes to us all, but sadly earlier for some than others. For some unfortunates in the early 19th century, their fate was to be victims of the gruesome trade in human corpses for dissection.

Before 1832, legally obtained corpses for teaching were rare. Although many crimes attracted the death penalty, 'hanging with dissection' was reserved for murderers and only these corpses could be used for medical study. Fewer legally available corpses meant demand exceeded supply as anatomical study in British medical schools flourished in the early 19th century – a shortfall attracting criminals willing to obtain specimens by extreme means. Once bodies gained a financial value, criminals began to trade in death – and even murder.

"Up the close and down the stair,
In the house with Burke and Hare.
Burke's the butcher, Hare's the thief,
Knox, the man who buys the beef."

Playground song about Burke and Hare

The new market spawned an innovative criminal, highly paid and skilful at snatching bodies. These grave-robbers, or 'Resurrection Men', roamed graveyards under cover of dark armed with wooden shovels (metal was too noisy). Freshly buried corpses fetched up to £10 in good condition, a high price in those days and worth risking arrest for. Stealing a corpse was only a common-law misdemeanour at the time, attracting a fine and imprisonment. This offence was not considered to be a felony, which would have been punishable by transportation or execution. Even teeth made money as dentures, with one resurrectionist reputedly earning £60 from a single vault by dental extractions.

Burke and Hare

Despite their renown as resurrectionists, Irish labourers William Burke and William Hare may never have actually robbed a grave. Burke was found guilty of murder in December 1829. Although he confessed to committing murders, he still claimed his innocence of grave-robbing itself to the last. The pair perhaps felt digging for corpses to be too much effort and decided murder might be easier work. They began business by selling the body of Hare's tenant, who died suddenly – replacing his body in the coffin with a similar weight, which was then innocently buried.

Burke and Hare took the corpse to Edinburgh's Medical School, where they later sold it to Dr Knox, the man who would become their prime customer. After their first deal, the duo went into cadaver sales on a full-time basis. To keep their business simple (avoiding suspicion and detection), they selected vulnerable or solitary victims. They were well versed in murder technique and favoured suffocation because it left no obvious post-mortem marks.

But Knox's students began getting suspicious of his rather good supply of bodies, sometimes even recognising a corpse – prostitute Mary Paterson, or the boy called 'Daft Jamie'.

Police suspicions also became aroused, and they finally identified the 16th victim's body in Knox's laboratory, although they found murder difficult to prove with such little physical evidence. Hare was released since he turned King's Evidence to convict Burke, who was sent to the gallows. Burke's own dissection packed the gallery and some students reportedly stole small pieces of his skin. Hare is believed to have died a London pauper in 1859, while Knox was never prosecuted.

The London Burkers

In 1831, a copycat group of bodysnatchers – John Bishop, Thomas Williams and James May – was caught supplying London's medical schools with suspiciously fresh corpses. The Wellcome Library's Archives and Manuscripts collection includes fascinating material on these characters, illuminating the men behind the headlines, surprisingly underused by many of today's historical writers.

The 'London Burkers', so called for imitating Burke and Hare, caused a sensation when found guilty of murdering a 14-year-old boy delivered for dissection at King's College London. Police originally identified the boy as Italian, but Bishop and Williams later admitted he was a Lincolnshire cattle drover, on his way to Smithfield when they lured him to their lodgings, drugged him and pitched him into a well to wait until he died. The anatomy demonstrator alerted the authorities when he received the boy's body, suspecting the men of foul play. Police arrested the three and found clothing in the well and a privy near their lodgings, suggesting several murders.

The prisoners were found guilty at the Old Bailey in December 1831. They murdered another boy in a similar way, by drugging him before his death, as well as Frances Pigburn and her child. May's desperation and anger at the verdict against him are preserved in a short poem he wrote after sentencing. Found in his cell, the slip of paper reads:

> James May is doomed to die
> And is condemned most innocently
> The God above he Knows the same
> And will send a mitigation for his Pain.

May was never hanged – his sentence changed at the last minute to transportation for life. Wellcome Library papers indicate that, once condemned, Bishop and Williams made full confessions, witnessed by the Keeper of Newgate Prison, exonerating May from murder, if not of bodysnatching: "The prisoner May was never made acquainted how we came into the possession of the body, or wether the body was murdered or taken from a grave and this is the whole truth I most solemnly declare in the presence of my Maker."

By declaring his innocence of the greater crime, Williams helped to save May's life, but forfeited his own. Williams and Bishop were executed before a crowd of around 35 000 on 5 December 1831. Their bodies were dissected, and their remains publicly exhibited.

The bodysnatching of corpses, and murder to obtain bodies for sale, led to the 1832 Anatomy Act, which legalised dissections in the event of bodies being unclaimed. This Act provided a sufficient, legitimate supply of corpses for medical schools, as anatomists could now buy cadavers from workhouses. Prices fell and bodysnatchers found the job's risks outweighed its rewards.

By **Diane Smith**, with **Alice Ford-Smith**, Assistant Librarian at the Wellcome Library.

This essay is adapted from the chapter Alice Ford-Smith wrote with Tony Gould for Cures and Curiosities: Inside the Wellcome Library *(2007), published by Profile Books.*

The Wellcome Library has a range of historical material related to bodysnatching. Further information on accessing the Library's collections is available at ***http://library.wellcome.ac.uk****.*

ABOVE LEFT
William Hogarth's depiction of a dissection, 1751.
Wellcome Library no. 907i

TOP RIGHT
Wellington and Peel in the roles of Burke and Hare suffocating Mrs Docherty for sale to Dr Knox; representing the extinguishing by Wellington and Peel of the Constitution for Catholic Emancipation. Coloured etching by W Heath, 1829.
Wellcome Library no. 12226i

ABOVE RIGHT
Portraits of William Burke (1792–1829) and Helen McDougal (b. *c.*1795), on trial in Edinburgh in 1828 for the West Port murders. Coloured etching, *c.*1829.
Wellcome Library no. 25731i

'The Body' summer school

Year 9 students meet a Renaissance surgeon, handle fossils, consider eugenics and debate the ethics of exhibiting human remains – all in a week-long, pilot summer school run by the Wellcome Library.

Attending a summer school whose highlights include simulating Renaissance surgery is perhaps an unconventional way for 14-year-old girls to spend a week of their summer holidays. Yet that's what 19 year 9 students from London did at the end of July 2006. Drawing on the strength of the Wellcome Library and other collections, including those of University College London (UCL), students explored the body from scientific, artistic, historical and ethical viewpoints.

Day 1, and the students, from St Marylebone High School and The Henrietta Barnett School, were treated to a bioarchaeology session, hearing how scientists extract information about disease from human remains at archaeological sites. Later, students met a 'Renaissance surgeon', who demonstrated some of his techniques on willing volunteers. 'Wounds' created with make-up showed grisly procedures such as amputation and the appearance of gangrene.

The following day, using images from the Wellcome Library, students learned how human anatomy concepts have changed. Their introduction to Galen held a surprise: his belief that humans were anatomically similar to animals, such as pigs. "I can't imagine they all believed him for so long, but I suppose the pig dissection would have been pretty amazing to watch. It would have convinced them that he knew what he was doing," said one student.

Later, the students moved on to a workshop at Camden's City Learning Centre. Working in groups, they produced short, entertaining animations – later turned into a DVD – on mummification, Renaissance surgery, Galen's theory of the four humours, medieval wound man and bodysnatchers. Animation proved another fun exercise where students could hone their illustration abilities while working in groups – thereby enhancing their skills at team working, sharing ideas and showing interest in others' work.

Evolution was the theme for day 3, hosted by the Grant Museum of Zoology. Students examined fossilised horse legs: millions of years of evolution captured in fossil bones. "That bit was really cool, I love horses! I can't believe they used to be the size of dogs," said one student. Being allowed to handle several exhibits particularly excited the students, who were compelled, repulsed but overwhelmingly surprised by the items on display.

> "I didn't really know much about the skeleton before this week and now I can tell whether it is a man or woman from the shape of its pelvis."
>
> Student

ABOVE AND RIGHT
Participants at the summer school, with a 'Renaissance surgeon' (above) and examining skulls (right).

> "We saw the head-measuring device and strands of hair and thought of the Aryan race, the Jews and Hitler."
>
> Student

Next was a visit to UCL's Galton collection, which includes the scientific instruments and papers of Sir Francis Galton (1822–1911). Despite his many achievements, Galton is renowned for his promotion of eugenics – "the science and practice of improving human stock".[1] Galton was mostly concerned with a 'positive' eugenics, such as advocating research programmes for identifying hereditary diseases. However, it is for the more negative associations, particularly with Nazism, that eugenics is best known. This history tends to influence people's attitudes to and understanding of Galton's original work. When groups were encouraged to think about the links between physical and mental characteristics, one group thought Galton was investigating inherited characteristics, another believed he was exploring physical links with personality, while a third compared his work to that of Nazi scientists: "We saw the head-measuring device and strands of hair and thought of the Aryan race, the Jews and Hitler."

By day 4 there was no sign of waning enthusiasm, with a visit to the Royal College of Surgeons's Hunterian Museum for a tour of the collections followed by group work. The students expressed their opinions on contentious topics such as funerary practices, 'green' burial, transplantation and exhibiting human remains. The students discussed exhibiting the body of 'giant' Charles Byrne, who paid for burial at sea to avoid being dissected. Several said his desire should have been respected, while others felt he deserved preservation despite his explicit wishes against it. "It doesn't matter what he wanted, we need to know why he was so tall," said one student.

After a full week, Friday allowed a little relaxation. Students visited UCL's Strang Print Room to understand how anatomical knowledge informs art through practical life drawing. Later, session leaders, students and parents enjoyed a celebratory tea party and certificate giving.

During the week, the students undoubtedly progressed in a variety of ways. One commented: "I didn't really know much about the skeleton before this week and now I can tell whether it is a man or woman from the shape of its pelvis." Several also experienced personal progress. One quiet girl said she had "spoken out loud much more than normal". Similarly another's increased confidence and genuine desire to learn helped her join in. One said the week "rekindled my interest in science".

The Wellcome Library plans to run another summer school in 2007 for 30 students, with ten pupils from each of three schools, to create even more social interaction.

By **Diane Smith** with **Eleanor Lanyon**, Outreach Officer at the Wellcome Library.

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Mystery collector

From the 1890s to the 1930s, Sir Henry Wellcome collected a staggering array of materials, which outgrew the Historical Medical Museum he established to display them. Documentation held in the Wellcome Library tells the story behind how this astonishing collection came to be amassed – and dispersed.

ABOVE
Canon of Medicine by Ibn Sena (Avicenna). One of the central texts of medieval Arabic medicine, this manuscript was transcribed in Isfahan in 1632. It was purchased for Wellcome's collection by Johnston-Saint in Cairo in 1932.
Arabic MS 155

Sir Henry Wellcome plunged the profits from his company into collecting. His aim, no less, was to tell the story of humankind's attitude to medicine, from ancient times to the modern day, encompassing all the cultures of the world.

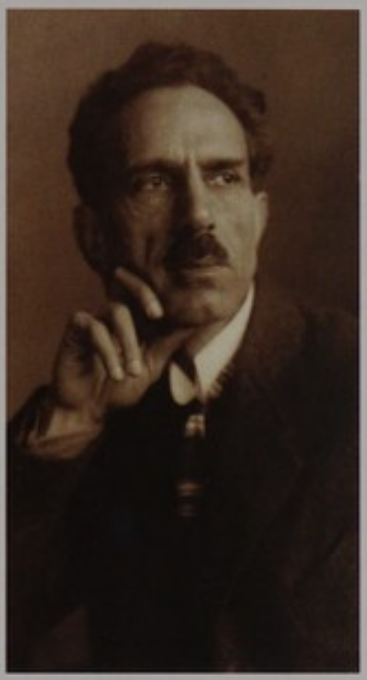
A man of meticulous detail, Wellcome made sure his collectors compiled detailed descriptions of their purchases. These accounts give an insight into the all-encompassing global outlook of his collecting. For example, a report from 5 February 1918 lists items purchased at Stevens's auction house in London:

> A Haussa triple charm worn against injury in battle; a Masai witch-doctor's necklet; and an ivory charm from Katanga: £1.10.0. Medicine man's ivory mortar? (medicine-container), from Zambesi; a mourning circlet from Sierra Leone; and a charm of two horns from Mashonaland: £1.15.0. A Tibetan sorcerer's talismanic mirror; a charm case and rosary; and an Indian silver charm worn against injury in battle: £1.10.0.

As this report suggests, many of the objects that Wellcome collected were bought at auction or from dealers. His papers reveal the battle of wills that went on between him and the sellers. Wellcome tried to maintain an air of secrecy to his buying, believing this would keep the prices for the objects he coveted down. If he visited book dealers, he told a friend: "I usually put on very plain clothes…A top hat usually excites the cupidity of the dealer, and the higher the hat the higher the price".

Later, when he believed dealers were deliberately upping their prices, Wellcome would forego visiting the book stalls and auction rooms, and sent new members of staff along in his place, with detailed instructions as to what items interested him. Unfortunately, many salesroom clerks grew wise to the practice and became adept at spotting his bidders.

Wellcome's secret buying reached its pinnacle with Epworth & Co. This company purchased manuscripts and books from dealers across Europe. When one dealer visited London, he stopped by Epworth's offices for a surprise visit. What he found at the company's address was a single locked room on the second floor of a building in Fitzrovia. Epworth & Co. was in fact a dead company – a false trail created by Wellcome and his collectors to throw the book dealers off their scent.



ABOVE LEFT
Sir Henry Wellcome and Captain Peter Johnston-Saint, one of Wellcome's travelling artefact collectors.
Archives and Manuscripts WA/HSW/PH/E

ABOVE RIGHT
Catalogue of the valuable collection of manuscripts, early printed books etc. of the late William Morris, Sotheby, 1898.

BELOW LEFT
Peter Johnston-Saint's sketches of objects offered in Rome, from his diary, 1928.
Archives and Manuscripts WA/HMM/RP/JST/B.2

BELOW RIGHT
Dr Paira Mall (1874–1957) was the most important figure in the acquisition of the Library's Asian materials. He spent years travelling the subcontinent, collecting artefacts and manuscripts, and was instructed to copy rare manuscipts preserved in private libraries.
Wellcome Library no. 13193i

Away from the auction houses, Wellcome dispatched collectors in his employ around the world in a search for relevant historical items. Dr Paira Mall spent most of the 16 years he was in Wellcome's employ living in the subcontinent, collecting objects and artefacts as well as manuscripts and books. Mall's reports to Wellcome describe not only the astonishing artefacts dispatched back to London, but also the hazardous environments traversed by Mall while searching.

> "Not only were auction houses' sales catalogues searched, but adverts requesting objects were placed by his staff in Exchange and Mart."

Captain Peter Johnston-Saint was another collector for Wellcome whose personality shines through in his reports. A man of impeccable social connections, Johnston-Saint used his contacts to acquire many fascinating objects, manuscripts and paintings for Wellcome. He travelled a great deal on Wellcome's behalf and his descriptions of interwar Europe offer an evocative account of the period.

What also comes through from these papers is Wellcome leaving no stone unturned in his search for items with a medical interest. Not only were auction houses' sales catalogues searched, but adverts requesting objects were placed by his staff in *Exchange and Mart*. One painting of a doctor with a urine glass is even acquired – for £14 – from "a man in the Kilburn High Road".

Wellcome's collecting ceased only with his death in 1936. By then, it has been calculated that his collection was five times the size of the Louvre's. The Trustees who oversaw his will took the decision to rein in his collection and from the 1940s onwards many objects were dispersed and sold. To give some impression of this exercise, a report from the 1940s – about ethnographic material alone – stated that a further 1380 cases of objects were still to be disposed of, in addition to 4000 spears, 600 clubs, 500 paddles and 150 shields.

Wellcome Collection's *Medicine Man* gallery will bring the objects that Sir Henry Wellcome collected to a wider audience than ever before. The Library's papers on how his collection came to be assembled unlock the stories behind this extraordinary man's astonishing collection. To make the story of Sir Henry Wellcome and his many and varied enterprises accessible to the public, a new website has been launched called Wellcome's World (http://library.wellcome.ac.uk/wellcomesworld).

By **Ross MacFarlane**, Wellcome Foundation Archivist at the Wellcome Library.

This essay is adapted from the chapter Ross wrote with Tony Gould for Cures and Curiosities: Inside the Wellcome Library (2007), available from Profile Books.

Reality and the biomedical image

Wellcome Images holds breathtaking pictures of life invisible to the naked eye. But are scientific pictures a faithful representation or a subtle distortion of reality?

When modern scientists capture images on their microscopes, they will be thinking about how they can clearly record the results of their experiment. Is the staining good and strong? Is this a typical area of the sample? Will this be good for my paper or conference presentation? They now also have the possibilities of digital manipulation to consider. Perhaps many files to choose from. The ability to crop parts of the image, enhance the contrast, touch up the colour, to make the results 'clearer' or more convincing.

This places the burden of scrupulous honesty on scientists to maintain the accuracy of the results they have recorded and to resist the temptation to enhance the images selectively. These temptations have led to much discussion in the scientific media on the theme of digital manipulation; what is and is not acceptable for publication and how much adjustment can be done and still represent the scientific 'truth'? When does removing 'artefacts' become surreptitious enhancement?

This is not a new debate: the German biologist Ernst Haeckel was accused of misrepresenting nature in his illustrations of embryos during a dispute with fellow German biologist Wilhelm His, in the late 1800s. It seems likely, in fact, that both men used their own illustrative interpretations to 'spin' the facts in a way that favoured their own theories.

At the time, photography could have resolved these issues, although it appears not to have been employed in this capacity. Even though Haeckel did make photographic studies of other subjects later in his life with the distinct purpose of pre-empting further criticism, he chose not to include photographs of the contentious embryos. A modern photographic study suggests that Haeckel did not accurately copy nature but made selective alterations in his illustrations to support his 'biogenetic law' – the idea that the stages of embryonic development reveal the evolutionary history of the organism ('ontogeny recapitulates phylogeny'). Haeckel's sleight of hand has, unfortunately, been seized upon by anti-evolution campaigners as a con trick designed to promote evolution.

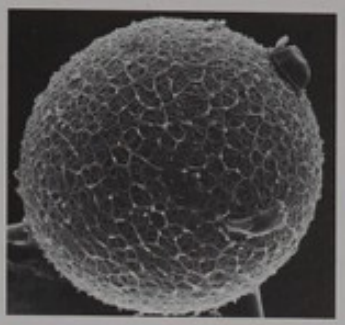
Whatever one makes of his scientific skills, Haeckel was undoubtedly an accomplished illustrator of natural history. His series, *Art Forms in Nature*, published between 1899 and 1904, includes magnificent drawings of animals of all kinds, from sea life to large mammals. But do they capture reality? Haeckel presents an idealised or exaggerated view of his creatures, emphasising the features he wants the viewer to appreciate.

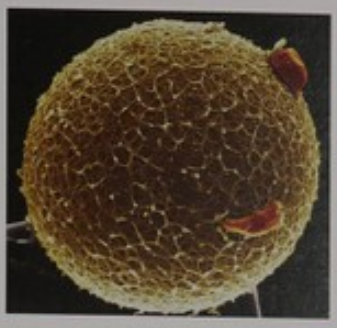
Nevertheless, Haeckel achieved great success in popularising natural history and enabling unfamiliar natural forms to be recognised as objects of great beauty. They are credited with helping Darwinism to become accepted in Germany, as well as providing inspiring source material for artists of the Art Nouveau age.

Similarly, while modern scientific microscope images are vitally important to the communication of research findings, like Haeckel's illustrations they have a life beyond the research paper. Many of these striking biomedical images also have the power to capture the public imagination. Intriguing shapes and patterns fascinate and tantalise the viewer into wanting to know more. Wellcome Images supplies material to a broad range of individuals and organisations keen to exploit their power to engage.

In this age of photography, people often feel that by seeing the 'real thing' in a photographic image rather than an artist's interpretation in an illustration, they are brought closer to an understanding, and feel more 'connected' to the mysterious world normally hidden from view. Illustrations can often be thought of as adding an extra layer of filtering between the viewer and fact. There is often an unspoken suspicion that scientists might not be passing on the 'truth' if all they show to the public are illustrations – it appears as a kind of visual censorship.

Visual reality of course is highly selective, varying according to the technique used – a human egg seen under an electron microscope looks enormously different from an egg seen under a light microscope. The first appears to be constructed like an intricately woven basket, dry and rigid, whereas the second is translucent and tenuously gelatinous – hanging in its watery surroundings as if it could dissolve at any moment. Which is real? Both reveal different aspects of the truth that allow us to learn more about the numerous features of the cell. The more information we have, the more complete a mental picture we can construct.





TOP LEFT
An electron micrograph of a human egg with two follicle cells attached. The image shows the structure of the zona pellucida, the coat surrounding the egg itself.

TOP RIGHT
This is the same image that has been colour enhanced, helping to distinguish the egg from the follicle cells.

MIDDLE
A living newly fertilised human egg photographed under a light microscope. The outer ring is the zona pellucida seen in the images above.

BOTTOM
A plate from Ernst Haeckel's *Anthropogenie*, published in 1874, showing a comparative study of embryonic hog, calf, rabbit and human.
Reference GM 493

The choice of technique depends very much on the question being asked. The resulting images range from the most obviously real, those viewed at low power with a light microscope, to newer developments that appear to push the bounds of reality out to new limits. Cryo-electron microscopy is one of these techniques; it allows detailed structural images of molecules and even parts of molecules, previously too small to image directly, to be captured by an electron microscope. A computer assimilates a multitude of different, apparently poorly defined individual images to make a structure compatible with all the diverse orientations in which the molecules are positioned under the microscope. The resulting image has the appearance of a 3D computer graphic and yet is a synthesis of numerous realities.

Because they use electron beams rather than visible light, electron microscopes always produce black-and-white images. These are beautiful and striking, but are often colour-enhanced when aimed at a general audience, to highlight different features and to make them look more 'real'. By using colour we are adding something that due to technical limitations cannot exist in the original (this was Haeckel's justification for the use of illustration); the object does not appear to us as it would if we were able to see it with a giant magnifying glass. Does the addition of something to the image that cannot be captured in the original enhance its reality? Colour enhancement rarely, if ever, appears in research papers where primary results are reported, but even the most prestigious research journals use beautiful, colour-enhanced images to grace their covers and entice the reader – scientists too are drawn in by the power of beautifully coloured images.

Issues around manipulation, reality and interpretation will no doubt continue to occupy the minds of scientists, reviewers and publishers – and rightly so. More broadly, though, biomedical images will carry on inspiring viewers with their beauty and provoke curiosity about the scientific world.

By **Jenny Whiting**, Picture Editor for Wellcome Images at the Wellcome Library.

Each year the Biomedical Image Awards showcase a selection of outstanding images submitted to Wellcome Images (see ***www.wellcome.ac.uk/bia*** *for 2006 winners). Images are available from* ***http://images.wellcome.ac.uk****.*

Moving a great library

In April 2007, the Wellcome Library finally returned home to 183 Euston Road. The move itself meant relocating almost three million books, papers and paintings, as well as over 70 members of staff. The Library now forms a core part of Wellcome Collection, a major new public venue placing science in the broad context of health and wellbeing.

The Wellcome Library's return to the 183 Euston Road building presented a huge logistical challenge. An army of project managers, architects, service engineers and storage specialists worked closely with Library staff to ensure the emergence of a dynamic and creative public space.

Envisioned as more than simply moving the Library's contents, plans to upgrade and expand the Library spaces date back to 1998. But how much space to allow? Space estimates had to be considerably revised: staff originally estimated that the Library housed one million items, but significantly more were found. A survey of all the collections unearthed almost three million items. This extensive task meant working with mixed paper and electronic records, and developing a list of all the items; this became the backbone of the entire move.

Library staff participated in the refurbishment, storage planning, drafting functional requirements, commenting on floor plans, and helping with the selection of furniture, lighting and shelving designs. Ways of working have undergone a dramatic shift because staff now occupy open-plan areas. By consulting widely and exploring how people would work after the move, the Library move project team helped ease staff into the new open style. For most staff the move has meant simply packing and unpacking their desks but others, such as those in Preservation and Conservation, and Wellcome Images, have had the added complication of safely transferring vulnerable specialist equipment.

The move was not without near-disaster either. Coming close to final preparations, six inches of water was found cascading down the stairs under the collection areas. However, thorough planning and training averted any serious damage. The impressive new BS5454 storage facility, which houses books, paintings, manuscripts and archives, should help to avoid any mishap in the future. Its proactive environmental controls trigger alerts in the event of unscheduled humidity or temperature changes, or outbreak of fire.

21st-century library

The Wellcome Library is now bigger and better – with double the open access storage and reader space, and new Reception, Enquiry Hall and Copy Service areas. The redesigned Rare Materials Viewing Room allows groups, such as film crews, to talk freely rather than feel constrained by a traditional hushed library atmosphere. Our e-Strategy department has developed a sound technical infrastructure for access to up-to-date services, including WiFi and 44 new computer workstations. Our signage consultants have ensured no one gets lost in the Library's new layout, with improved visitor flow and a journals drop-in area. The refurbished building also includes a diverse range of activities – from viewing areas to conservation to e-learning.

External suppliers and Wellcome staff have worked hard together to produce a public space that we hope visitors will find as stimulating as it is functional.

By **Diane Smith**, with **Wendy Fish**, Head of User Services, and **Caroline Checkley-Scott**, Senior Conservator at the Wellcome Library.

Further information on the Wellcome Library is available from **http://library.wellcome.ac.uk**.

Digital library

During 2006, the Wellcome Library continued to address the demands and opportunities of the electronic age with a range of initiatives that enhance access to information.

Medical Journals Backfiles Digitisation Project

The Medical Journals Backfiles Digitisation Project will deliver free online access to almost 200 years of peer-reviewed research through the digitisation of the complete back issues of at least 20 historically significant biomedical journals, with over 3 million pages of text.

While progress continues, 2006 saw the release of the complete backfiles of a number of key titles, including the *Biochemical Journal*, the *Journal of Anatomy* and the *Journal of Physiology*, into the PubMed Central repository.

The Wellcome Trust and the Joint Information Systems Committee (JISC) jointly fund this £1.25m project, which has been developed in partnership with the US National Library of Medicine. For further information, see **http://library.wellcome.ac.uk/backfiles**.

Digital archives

Despite our increasing dependence on digital media, little attention has been paid to the long-term preservation of born digital archives (i.e. archives that are created and disseminated in electronic form). Consequently we are now in danger of losing many scholarly, cultural and scientific resources for future generations.

To address this issue, the Wellcome Library, with the University of Oxford and the National Library of Wales, is developing plans to secure a long-term future for born digital material. Work to date includes trials with the Fedora digital object repository and the creation of policies for the acquisition and life-cycle management of this material.

We envisage that many collections will eventually form a hybrid of paper and electronic material, so we plan to integrate born digital material into our existing collections, and not treat it as anything 'different'.

Remote services

Recognising that not all our readers can always make visits in person, we now provide web-based access to as many of our services as possible.

The remote access scheme, launched last year, enables registered users of the Library to access a growing number of subscription databases. Databases available through this scheme include Early English Books Online – with over 120 000 full-text books published between 1473 and 1700 – and the digital edition of *The Times* (London), 1785–1985. Further information on resources is available at **http://library.wellcome.ac.uk/remoteaccess.html**.

These electronic facilities are supplemented by new scanning services that allow copying of previously restricted material, which is available in electronic format for users.

We continue to develop our three subject gateways, which provide access to evaluated web resources in the fields of biomedical ethics, medical history and public engagement with science. These resources are now incorporated within Intute (**www.intute.ac.uk**), a free online service that provides access to high-quality web resources for education and research.

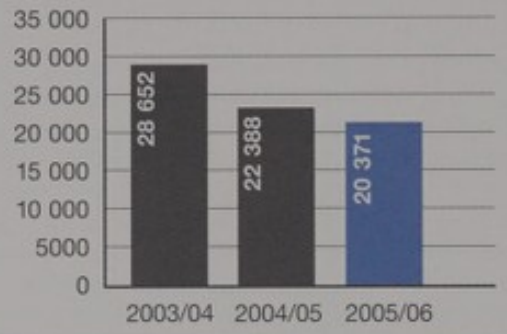
UK PubMed Central

During 2006 the Wellcome Library, on behalf of the Wellcome Trust, worked with a number of other biomedical research-funding bodies to establish a UK-wide repository, UK PubMed Central (UKPMC), for biomedical research papers. UKPMC (**http://ukpmc.ac.uk**) currently provides access to the full text of over 700 000 articles, and allows researchers – funded by the Trust, the Medical Research Council, Cancer Research UK and others – to deposit papers accepted for publication in peer-reviewed journals. Over the coming years, UKPMC will continue to develop so that it becomes the destination site of choice for the UK biomedical research community.

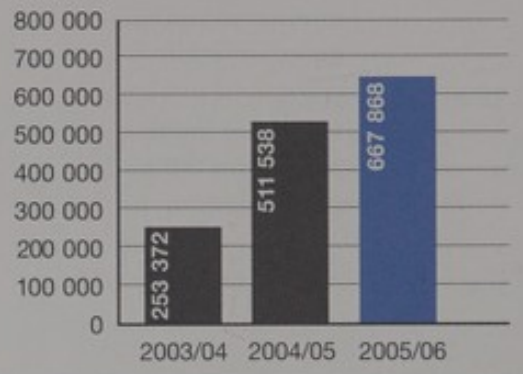
By **Robert Kiley**, Head of e-Strategy at the Wellcome Library.

Patterns of use and statistical trends

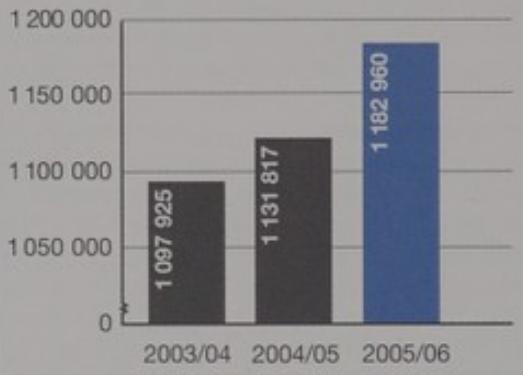
Wellcome Library website – page views[1]



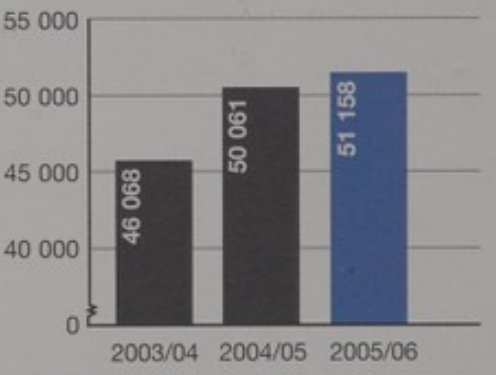
Wellcome Library website – unique visitors[2]



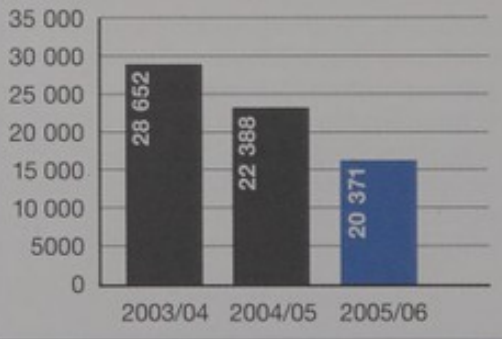
Wellcome Images – page views



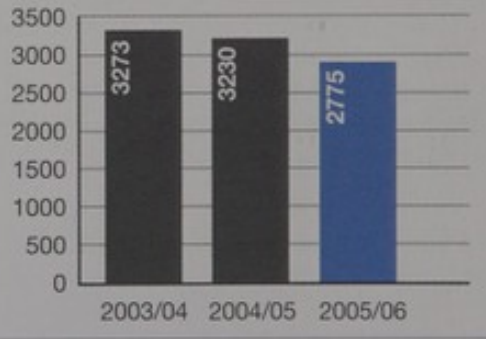
Wellcome Images – unique visitors



Visitors[3]



New registrations



1 Page views: hits to pages on the website.
2 Unique visitors: individuals who visited the website.
3 The fall in visitor figures between 2004 and 2006 coincides with the Library's move to temporary, and much smaller, accommodation during the major refurbishment of its permanent home at 183 Euston Road.

Acquisitions during 2006

Archives and Manuscripts

Albinus, Bernhardus (1697–1770), physiologist and anatomist, Leyden University. Notes of lectures on anatomy and physiology, taken by an unknown English-speaking student, mid-18th century.

Alcohol Education Research Council. Administrative papers and records of research funded by AERC grants, 1980s–1990s.

Association for Research into Restricted Growth. Minutes, newsletters, correspondence, articles and other papers, 1970s–1980s.

Beale, John (1923–2005), virologist, Wellcome Foundation employee. Papers, mainly concerning vaccination science, policy and practice in respect of several diseases including AIDS, TB and BSE, 1980s–2000s.

Blackett family, Northumberland. Culinary and medical recipe book, late 17th–early 18th century.

Dickinson, Frank (1906–1978), contact lens pioneer. Lecture notes, conference papers, clinical jottings, cuttings and photos, 1950s–1970s.

Jernegan and Arundell families. Letters between various family members, including a doctor, discussing personal matters, including their health, 1708–20.

Larrey, Dominique Jean (1766–1842), Baron Larrey, Surgeon-in-chief of the Napoleonic army. Letter to his wife from Moscow, describing the recent battle of Borodino, 1812 (see page 4).

Lloyd, Jane Margaret, Rhagatt, Denbighshire. Record of prescriptions, including some homeopathic, 1852–1901.

MacKeith, Ronald (1908–1977), paediatrician with particular interest in feeding and special needs, especially cerebral palsy. Administrative documentation, drafts and notes, and pictorial material, 1950s–1970s.

Middleton, Lt-Col David, RAMC (fl. 1940s). Papers on his military service, especially in Singapore in charge of No. 1 Malay Hospital, and his subsequent incarceration in Changi jail during Japanese occupation, 1939–45.

Palmer, Eileen (fl. 1910s–1930s), promoter of birth control, Secretary of the Birth Control Worldwide group. Collection of material on the British and international birth control movements, predominantly the activities of the birth control advocate Edith How-Martyn (1875–1954), 1915–39.

Pereira, Jonathan, FRS (1804–1853), professor of materia medica. Correspondence, 1833–50.

Rycroft, Charles (1914–1998), psychoanalyst. Correspondence, appointment diaries, manuscripts and drafts of published and unpublished works, press cuttings and family memorabilia, mid–late 20th century.

Wright, Sir Almroth (1861–1947), surgeon. Correspondence, papers and photographs of Sir Almroth, 1915–49. Additional acc. to Wright pps.

Materials purchased	05/06	04/05
General Collections	2305	2687
Rare Books	96	64
Archives and Manuscripts	77	25
Asian Collections	80	285
Iconographic Collections	543	56
Journals and databases	863	908
Science and Society Collection	996	n/a
Miscellaneous	84	n/a

Ephemera

Advertising blotters for: California Syrup of Figs, 1930s; Act-al, 1960s.

Allen & Hanbury's press advertising, 1880–90.

Colour trade cards advertising: Dr. Bronson's Pepsin Tronches, 1890s; Wampole's Creo-Terpin, 1930s; H & T Kirby & Co., manufacturing chemists, *c*.1881.

Edwardian magazine inserts advertising Pears, Sunlight & Goodwin's Ivy soaps.

461 magazine inserts from professional medical magazines in Cuba, Mexico, Argentina and Peru, advertising drugs and paediatric products to a professional medical audience, between 1940 and 1960.

Postcards advertising: Peebles Hotel Hydropathic, 1921; Royal Victoria Infirmary and Baker's cash chemist, both Newcastle-on-Tyne, 1910s.

Small collection of leaflets, stationery and fundraising items relating to opticians and the blind, 1913–59.

Thermodyne anodyne plaster (for the chest and back) with packaging, 1920s.

Iconographic Collections

Bethune, Dr Norman, etc. Maoist propaganda posters covering hygiene, child welfare, immunisation, women's roles, the health of factory workers and germ warfare, 1950s–1970s.

Collections of lithographic printed posters on: AIDS, from Germany, the USA and The Netherlands; public health education from the Czech Republic; and safety in the workplace as promoted by the Berufsgenossenschaften (professional associations in Germany), 1990s.

Drawing of the dream of Saint John Damascene, the opponent of iconoclasm, having his severed right hand reattached. Bolognese, 17th century.

Gbodossou, Erick Vidjin' Agnih. Set of 22 colour prints on cotton, used to train traditional healers in West Africa in germ-theory-based medicine, 2000.

Jenichen, Balthasar. Portrait engraving of Paracelsus comparing Paracelsus's position in medicine to Albrecht Dürer's in painting, 1572.

→

Acquisitions during 2006

Kilian, Lukas and Wolfgang. Allegorical portrait of Johannes Henisius (1585–1666), Bavarian plague scholar. Engraving. Augsburg, 1638.

Legard, Miranda. Portrait painting of Dr Helen Muir: biochemist, Director of the Kennedy Institute for Rheumatology at the West London Hospital in Hammersmith (1977–90), and Trustee of the Wellcome Trust (1982–90), 1990/1999.

M.A.C.T., a patient in Jungian analysis with the psychoanalyst Dr Alan McGlashan. 20 drawings of dreams, *c.*1967–78.

Photographs of Arthur Radiguet X-raying a patient. Radiguet was an enthusiastic early pioneer of X-rays. As a result of his exposure to radiation, he underwent several amputations, and after five painful years died in 1905, aged 55.

Sharp, Michael William. Portrait of Benjamin Jesty, the first known person to practise vaccination. Oil painting, 1805.

Watercolour copies of 11 of the 80 paintings of human anatomy and materia medica commissioned by the Regent of the fifth Dalai Lama, 1687.

Williams, Charles. Two coloured etchings contrasting the wise and healthy lifestyle of Tsar Alexander I of Russia and the unhealthy overindulgence of his contemporary George, Prince Regent, 1814.

Rare Books

Ailhaud, Jean. *Traité de l'origine des maladies et de l'usage de la poudre purgative*. Avignon, 1751. Fifth enlarged edition of this popular work on a miracle of patent medicine, with the signature of the author and directions to his shop.

Aristotle's master-piece, or the secrets of generation. London, 1692. Anonymous work first published in 1684. All 17th-century editions are very rare (see page 4).

Antidotarii Romani Sev De Modo Componendi Medicamenta Quae sunt in vsu, Opus Pharmacopolis, Medicisque...Ad Gregorivm XIII. Rome, 1583. First edition of the first Roman pharmacopoeia in a contemporary binding with the arms of Cardinal Filippo Buoncompagni (1548–1586), nephew of the dedicatee, Pope Gregory XIII.

Collection of 22 bound volumes of pamphlets containing 215 printed and manuscript items formed in the middle of the 18th century by a prominent French provincial physician and philosopher. Jean Bouillet (1690–1777) was a physician at Béziers, a member of the Montpellier and Bordeaux academies, and a corresponding member of the Académie Royale in Paris.

Viotti, Bartolommeo. *De Demonstratione libri quinque*. Paris, 1560. This copy has the ownership signature and manuscript notes of John Dee (1527–1609), the English librarian (see pages 8–9).

Drebbel, Cornelius. *Ein kurtzer Tractat von der Natur der Elementen*. Frankfurt, 1628. Extremely rare third augmented edition of Drebbel's alchemical treatise on the interaction and transmutation of the elements and their meteorological effects.

Ein newe badenfart. Strasbourg, *c.*1540. The anonymous author discusses the most important aspects of bathing including bloodletting, purgatives, the use of baths in curing kidney stones, lameness and many other ailments, as well as in the preservation of good health. The work is particularly noteworthy for the two striking full-page woodcuts illustrating bloodletting.

Leigh, Edward (1602–1671). *Critica sacra*. London, 1650. This copy has the ownership signature and manuscript notes of Thomas Vaughan (1622–1666), the English alchemist and poet.

Rösslin, Eucharius. *The birth of mankynde, otherwyse named the womans booke. Newly set forth, corrected, and augmented. ...[Translated by] Thomas Raynalde Phisition*. London, *c.*1565. Includes a folded sheet with nine anatomical figures and two leaves of birth figures. With contemporary annotations and later ones by a 19th-century practitioner, Sir Edward Burrowes Sinclair (1824–1882), Professor of Midwifery at Trinity College Dublin from 1867.

Sperelli, Andrea. *Virtu dell'oglio contra peste, che si fa ogni anno per l'illustrissima communita di Ferrara*. Ferrara, 1630. A rare booklet containing instructions for the use of a special oil against the plague and used as an antidote for poisons, insect bites and numerous other maladies, including spider and scorpion bites, mushroom poisoning, kidney stones, poisoned weapon wounds, intestinal worms and all kinds of fevers.

Tableaux interrogatifs, Ou Nouvelle Methode D'enseigner l'art des accouchemens aux Sages-Femmes de la Campagne. Bourg, *c.*1820. An unusual series of nine broadsides presenting "a new method of teaching obstetrics to the midwives of the countryside". In a series of 775 questions, the topics range from conception to delivery, with detailed questioning in particular on the pelvis, the uterus, and the presentation of the fetus.

Asian Collections

Shams al-Ma'arif wa lata'if al-'Awarif. A treatise on the secret of letters and their significance in magic. The manuscript copy comes from Turkey and dates from the 18th or 19th century. It is written in a neat naskh script, with drawings and diagrams in the margins, and the text is annotated by a later hand (see pages 10–12).

Moving Image and Sound Collections

40 items (film, video, sound) donated from Monica Britton's collection on the subject of anaesthesia. The Monica Britton Medical History Collection was based at Frenchay Hospital, Bristol, but is now closed. The collection was founded in 1985 by a generous donation from the late Mr J Britton in memory of his wife, who came from a medical family and was extremely interested in education. The collection included a wide spectrum of surgical, medical, anaesthetic, radiological and pharmaceutical artefacts, together with books, catalogues and photographs.

Staff list

Staff at 31 December 2006

Frances Norton
Head of Library

Tracey Wickham
Project Manager – Library Migration

Tracy Tillotson
Library Administrator

Access and Stewardship

Bridget Kinally
Head

Eleanor Lanyon
Library Outreach Officer

Julia Nurse
Curatorial Liaison

Nicola Fleming
Temporary Curatorial Assistant

Preservation and Conservation

Caroline Checkley-Scott
Senior Conservator

Lara Artemis
Conservator

Stefania Signorello
Conservator (on maternity leave)

Amy Junker Heslip
Conservator (maternity leave cover)

Moving Image and Sound Collections

Angela Saward
Curator

Ruth Blue
Assistant Curator

Wellcome Images

Catherine Draycott
Head

Jennifer Whiting
Picture Editor, Biomedical

Caroline Morley
Picture Researcher

Venita Paul
Senior Picture Researcher

Clive Coward
Picture Researcher

Anna Smith
Picture Researcher

Chris Carter
Senior Photographer

David Sayer
Photographer

Richard Everett
Digital Imaging Manager

Laurie Auchterlonie
Imaging Systems Support Technician

Collection Management

Zina Sabovic
Head

Paul Davey
Cataloguing Services Manager

Anna Anstead
Assistant Librarian (Cataloguing)

Stephen Lowther
Assistant Librarian (Cataloguing)

Branwen Lloyd-Evans
Assistant Librarian (Cataloguing)

Robert Wyburn
Assistant Librarian (Cataloguing)

Yasmin Bokhari
Acquisitions Team Leader

Moira Furber
Assistant Librarian (Acquisitions)

Rosemarie Nief
Assistant Librarian (Acquisitions)

Victoria Sinclair
Assistant Librarian (Acquisitions)

e-Strategy

Robert Kiley
Head

Margaret Savage-Jones
Library Systems Administrator

Alison Henning
Library Systems Officer

Natalie Pollecutt
Library Systems Officer

Dave Thompson
Digital Curator

Andy Harris
Project Manager, UK Pubmed Central

Research and Special Collections

Julia Sheppard
Head

Archives and Manuscripts

Richard Aspin
Head

Lesley Hall
Senior Archivist

Christopher Hilton
Senior Archivist

Amanda Engineer
Archivist

Helen Wakely
Archivist

Natalie Walters
Archivist

Ross Macfarlane
Project Archivist/Manager

Chris Beckett
Assistant Project Archivist

Rare Books

Julianne Simpson
Rare Books Librarian

Asian Collections

Nikolai Serikoff
Asian Collections Librarian

Iconographic Collections

William Schupbach
Iconographic Collections Librarian

User Services

Wendy Fish
Head

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Wellcome Library for the History and Understanding of Medicine

Library Reception is on the second floor.

Opening hours

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