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[The Powell-Cotton Museum, Quex Park, Kent](#)

[29 January 2017](#) [BSHS Admin](#) [Leave a comment](#)

By Lisa Glass, University of Kent

From the outside, the building in which the [Powell-Cotton Museum](#) resides looks like any typical English stately home. Step inside, however, and you will find yourself immersed in a world of late-Victorian natural history in a visual display that spans the entirety of eight galleries from floor to ceiling. It was the explorer, [Major Percy Horace Gordon Powell-Cotton](#) (1866-1940), a hunter and early conservationist, who filled his family's home with a collection of natural specimens from around the world. The collection is displayed in a series of dioramas, featuring animals against backdrops that represent their natural habitats, including the oldest untouched diorama – that is, a model of a scene including three-dimensional figures (in this case, real animals preserved through taxidermy) – of its type in any museum around the world.



Percy Powell-Cotton was born in Garlinge in Margate, Kent. His family took ownership of Quex House in nearby Birchington when Percy was 15 years old. He began breeding chickens, hunting rabbits and photographing wildlife, keeping meticulous records of these endeavours. His early habits stayed with him when, in 1890, he embarked on the first of many expeditions, collecting natural history specimens in Kashmir, Northern India, and Tibet.

Over the ensuing 50 years, he embarked on around 30 similar expeditions across Africa and Asia, to gather and categorise zoological and ethnographical specimens. Unlike other Victorian explorers, Percy was primarily concerned with contributing to scientific knowledge through preservation and documentation, not with indiscriminately collecting trophies. He kept meticulous records for all the animals he gathered, including map references, longitude and latitude locations, detailed body dimensions, age, sex and external pathology. The specimens collected were transported back to Quex Park, prepared for display by the expert taxidermist Rowland Ward, and then placed in a specially designed pavilion in the gardens of the park, which Powell-Cotton had commissioned his brother to construct. The wide range of animal specimens has proved to be a valuable resource in taxonomic research, even to the present day. Consequently, Powell-Cotton has had several species named in honour of him.

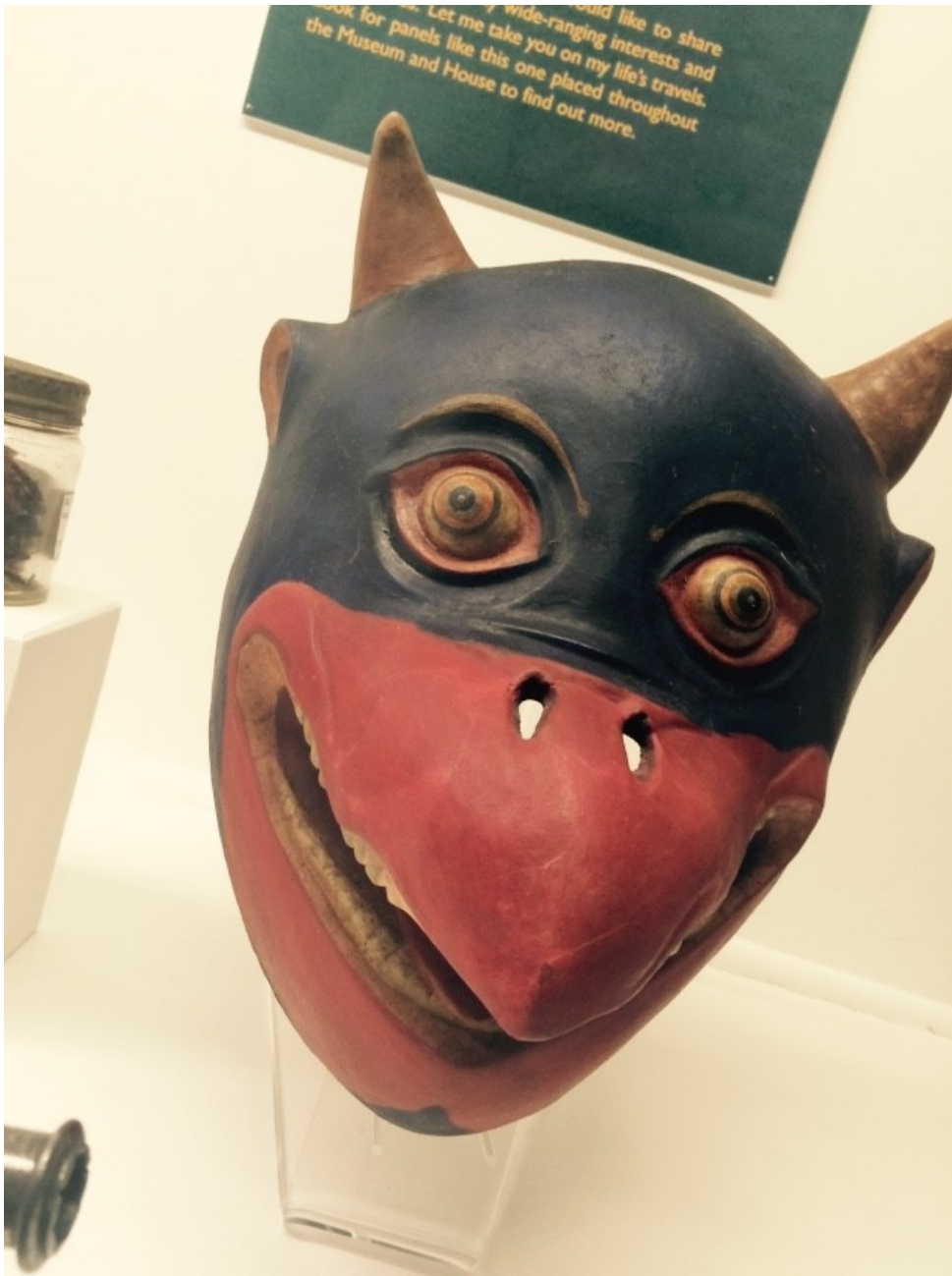
Among familiar sights such as lions, elephants, apes, primates and many more, some of the animals on display at the museum are now highly endangered species; for example, the Ethiopian wolf, the Angolan giant sable and the white rhino. Notably, the collection also includes over 2,000 specimens of primates. Indeed, during his expeditions, Percy was responsible for identifying over ten new species or sub-species of primate, some of which he named after himself.



Percy was so dedicated to finding, documenting and preserving natural history specimens through his expeditions that not even marriage could interrupt him in his calling. In November 1905, while on an expedition in Kenya, he married Hannah Brayton Slater in Nairobi Cathedral and, rather than interrupt his ninth expedition, his new wife joined him on it, for a honeymoon that lasted two years. It was during this honeymoon, in 1907, that Powell-Cotton was badly mauled by a lion. Thinking the animal incapacitated by a good shot, as he approached it, the animal leapt on him, attacking with its claws and jaws. However, Powell-Cotton escaped relatively unharmed thanks to a rolled-up copy of *Punch* magazine that was in his breast pocket, and protected him from the worst of the onslaught. The lion, the suit that Powell-Cotton was wearing and the copy of *Punch* are now all on display at the museum.

The museum still regularly attracts huge numbers of visitors yearly. Wandering through the galleries of the museum, which teem with a diverse array of wildlife, it is possible to feel overwhelmed by the sheer number of taxidermied animals. While it may not to everyone's taste as a form of entertainment, as a slice of scientific

history, the Powell-Cotton museum is certainly very important. To modern attitudes, this particular form of conservation may seem counterintuitive and even distasteful. However, the aim was not merely to display Percy's prowess as a hunter, he was aiming to build up an encyclopaedia of animals, to preserve them for scientific purposes, and to allow members of the public to see them, by perhaps the only means they were able to, apart from in grainy photographs.



Indeed, making the collection available to the public is a strong underlying ethos of the museum. One of the most attractive features of it as it is today is the handling collection, which is kept in gallery 6 of the museum. Having received Arts Council funding in 2013, the museum is able to make accessible a selection of natural history and ethnographical objects for visitors to touch and play with, creating an ever-changing and evolving display. With this in mind, it is possible to argue that Major Powell-Cotton was one of the earliest and most successful science communicators, whose work reaches out from its origins in the Victorian era, right up to the present day.

Further reading:

<http://www.quexpark.co.uk/museum/>

Percy Horace Gordon Powell-Cotton. 2012. *In Unknown Africa: A Narrative of Twenty Months Travel and Sport in Unknown Lands and Among New Tribes - Scholar's Choice Edition*. [RareBooksClub.com](http://www.RareBooksClub.com).

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[Kenttaxidermy](http://www.Kenttaxidermy.com)

[England](#), [Uncategorized](#), [United Kingdom](#)

[Bushy Hill, Essex](#)

[26 October 2014](#) [BSHS Admin](#) [Leave a comment](#)

By Alice White

Although not an obvious tourist destination, Bushy Hill is the biggest landmark in the area of South Woodham Ferrers, Essex, and has played a notable role in the history of technology, as well as unintentionally providing natural science revelations.

From the 1950s, Bushy Hill was one of the sites used by Marconi for its radar development programme, and as a result of the prominence of this technology upon its summit, it has come to be known as “Radar Hill”. It is visible for miles around and commonly used as a navigation point for planes flying using Visual Flight Rules (VFR). Many people have therefore seen Bushy Hill, but few are aware of its interesting history.



Marconi Radar (pictured in 2006). This is one of the antennas at TQ8198 : Bushey Hill Radar near South Woodham Ferrers. Only a few short years ago the idea that Marconi would cease to exist except in name would have been unthinkable. (© Copyright Glyn Baker, CC BY-SA 2.0)

The United Kingdom’s radar system had been rapidly run down towards the end of the Second World War, but the first Soviet nuclear test in 1949 and the beginning of the Korean War in 1950 gave a new urgency to improving air defences. Marconi won significant contracts to develop radar, and acquired the Bushy Hill site in the mid-1950s in order to carry out trials on proposed new radar technology.

Bushy Hill was selected because existing sites were “rather too good”: they were located in dips and depressions that insulated radars from noise (called “clutter” in radar terminology) caused by reflections of radar signals from unwanted sources such as the ground.* However, to improve radar performance, it was necessary to find a way of reducing clutter. Bushy Hill, with unobstructed 360° views, and conveniently close to the Chelmsford headquarters of Marconi radar, was the perfect site. A large, 75 feet wide antenna was installed, and used to develop a range of transmitters and signal processing systems which were sold all over the world.

Bushy Hill has a Type 80 aerial mount, which had revolutionised radar in 1953. Developed under an RAF programme with the curious title GREEN GARLIC, this system dealt with both early warning and controlling interceptions. These extra seconds of advance notice acquired greater significance with the 1955 development of the Soviet H-bomb and the existence of new supersonic bomber planes. In 1959, the Marconi Company was awarded a government development contract for a passive detection system known as WINKLE, and a high speed receiving aerial was also installed. Despite the cutting edge technology, in the early days activities at Bushy Hill were restricted to daytime-only working because of complaints that the radars interfered with television reception, as both operated on Band 1 at the time.

This military-industrial site conducting work driven by Cold War concerns would also provide unexpected research legacies for a field far removed from supersonic jets and hydrogen bombs. Clutter caused by the ground had been effectively eliminated by the development of a Moving Target Indicator (MTI), but there were still small echoes appearing, moving slowly and randomly. Due to lack of explanation for these mysterious echoes, they were dubbed “Angels”. There were two possible explanations. During the early years

of World War Two, large flocks of birds had been picked up on radar, and even individual large sea birds detected – the Angels could therefore be birds. However, the behaviour of these Angels wasn't consistent with any known bird behaviour, so it was assumed that they must be pockets of warm air generated by factory chimneys or warm roofs.

Dr Sir Eric Eastwood and a small team had a great many very early mornings at Bushy, recording the flow lines which the Angels followed using a method similar to time-lapse photography. Rings which expanded outwards at dawn, like the ripples on the surface of water when a stone is thrown in, were at first assumed to be caused by the stoking of factory furnace, but an expedition to the site showed that there were not only no factories, and no buildings at all – the location of the rings was in the middle of open countryside! A copse of trees covered with starlings revealed the cause of the strange rings of Angels: successions of waves of birds, separated by three minute intervals, took off from the roost moving in expanding circles to feeding grounds. The Bushy Hill radars also confirmed the suspected “vesper” (evening) flights of swifts, and provided information on the migration of birds.

During subsequent years, Bushy Hill has been used for the development and testing of many systems, as well as being used as a showroom to demonstrate the performance of systems to potential customers. The large radar was also used as a source of radar signals to a number of users, such as the Radar Establishment at Great Malvern, the Marconi Research Centre at Great Baddow, and the RAF at Bawdsey. The RAF used this service to monitor some of its exercises. The site is still operated by BAe Systems as a trials site, so the site itself is not open to visitors, though the surrounding hills are often used for tobogganing.

Thanks to Roy W. Simons, OBE, C. Eng., F.IEE, F.I.Mgt., Chris Gardiner of the Marconi Veterans Association, and the MOGS forum for their kind assistance with this article.

*One unexplained effect of clutter was that the Dutch coast appeared to be travelling slowly towards the UK!

Address:

Further information

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Jack Gough, *Watching the Skies: The History of Ground Radar in the Air Defence of the United Kingdom* (HMSO, 1993)

R. W. Simons & J. W. Sutherland, 'Forty Years of Marconi Radar from 1946 to 1986' *GEC Review*, Vol. 13, No.3, (1998)

<http://www.radarpages.co.uk/>

[bushy hillengineeringessexMarconiradar](#)
England, Europe, United Kingdom

William Harvey Statue

22 January 2014 BSHS Admin [Leave a comment](#)

By Jane Seaman

In Langhorne Gardens, a residential area near Folkestone seafront, an imposing stone figure gazes across the English Channel. The statue of William Harvey, often described as “the father of modern medicine”, is situated incongruously between a lively bar and several hotels, flanked by a busy car park and period buildings now converted into flats and bedsits. To Harvey’s right, the clifftop path offers a bracing walk along the windswept Leas to the historic Grand; to his left is concert and entertainment venue, the Leas Cliff Hall. On a fine day, it’s the perfect place to sit outside, watching the sea and reflecting on the natural world, while enjoying an espresso. Sharing the view with Harvey. Although he was 72 years old before coffee became a popular drink in England, he was already a caffeine aficionado, enthusiastically extolling its ability to stimulate the brain.

A classically educated physician, anatomist, scientist and clinical experimenter, William Harvey was born in 1578 in a different Folkestone to the present day. Best known now as home of the channel tunnel, in the sixteenth century, Folkestone was an important and prosperous seaport, and Harvey’s father was a prominent citizen, becoming mayor several times.



The Harvey statue (copyright Jane Seaman 2013, all rights reserved)

After attending Kings School in Canterbury, William Harvey went on to study medicine at Padua, then the most famous medical University in Europe. His anatomy teacher was the celebrated Girolamo Fabricius (1537-1619), who, in 1574, discovered the valves in the veins, which permit blood to flow in only one

direction.

Upon returning to England, Harvey set up in medical practice in London, and in 1607, he was elected a Fellow of the Royal College of Physicians. By 1618, he was physician to King James and in 1629, Harvey published his famous "Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus" (Anatomical Disquisition on the Motion of the Heart and Blood in Animals).

In this work, Harvey proposed, and demonstrated by meticulously documented observation and experiments, that blood circulated around the body; a revolutionary theory which was contrary to the teachings of Galen, the second century Greco-Roman physician, who had claimed blood flowed in a back and forth motion, like the ebb and flow of a tide. Galenic ideas had influenced accepted medical knowledge for over a thousand years. Although Ibn al-Nafis, a Syrian physician, described the process of pulmonary transit as early as the thirteenth century, Harvey had discovered, in the process of his research into the workings of the heart, that this was what pumped the blood and circulated it; effectively revealing that the cardiovascular system was hydraulic.

Significantly, this was a time when mathematical practitioners and experimentalists in England were exploring the mechanics of pumps and valves, in a country excited by novel developments in science, navigation, technology, commerce and agriculture.

Looking up at the Harvey statue, made by A.B. Joy in 1881 and erected the same year, it is easy to forget how much medical science owes to his discovery. The statue's supporting pillar reads simply:

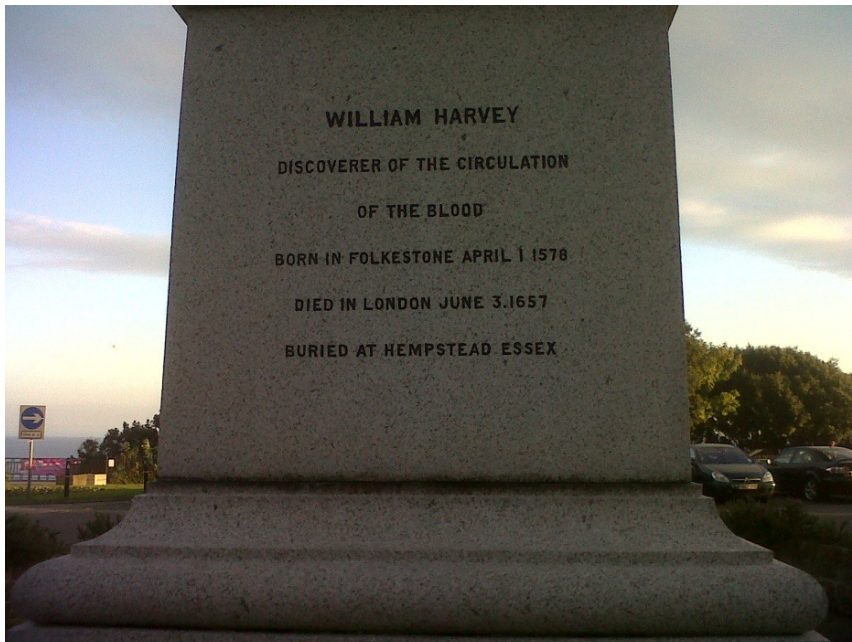
William Harvey

Discoverer of the circulation of the blood

Born in Folkestone April 1 1578

Died in London June 3 1657

Buried at Hempstead, Essex



Inscription on Harvey statue (copyright Jane Seaman 2013, all rights reserved)

In 1973, on behalf of the British Medical Association, an honorary plaque was added, in the presence of the Harveian society. Founded in 1831, members meet every June in Folkestone for the town's Harvey Sunday parade.



Plaque on Harvey statue (copyright Jane Seaman 2013, all rights reserved)

Sadly, all of Harvey's extensive research notes were lost when his house was burgled in 1642, and he died in 1657 at his brother Eliab's house in Roehampton.

But his legacy lives on, with the Harvey Grammar School set up by Eliab after his brother's death (there was no school in the town when William was a boy, a matter he remedied in his will), a popular pub called Harvey's at the end of Langhorne Gardens, and the block of flats just a few doors away called Harvey Mansions, which was my home for a year. And, fittingly, his name is given to the William Harvey hospital in nearby Ashford.

It seems serendipitous that Harvey's statue gazes eternally at the ebb and flow of the waves - how blood was once perceived to behave - until his discovery changed the future of medicine forever.



Harvey's view from the Leas (photo copyright Jane Seaman 2013, all rights reserved)

Address: Langhorne Gardens, Folkestone, Kent, CT20 2EA. Walk down from the point indicated on the map towards the sea and the statue is found just before you reach the Leas Cliff Hall.

Further information

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Websites

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http://en.wikipedia.org/wiki/William_Harvey

<http://www.historyofbiologyandmedicine.com/britain.htm>

<http://www.youtube.com/watch?v=ABTvNR59K5Q> - a YouTube video which explains blood circulation

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[Solar System Cycle Track, York to Selby, England](#)

[21 July 2013 BSHS Admin Leave a comment](#)

By Carolyn Dougherty



Pluto on the Solar System trail, York to Selby

The casual walker or cyclist exploring the portion of the Trans Pennine Trail between York, Bishopthorpe and Selby (travellers starting in York can find an entrance to the trail diagonally across from the southwest corner of the new York College campus on Tadcaster Road) might be surprised to encounter the Sun on a tripod.

This 2.5m diameter sculpture marks the beginning of the Solar System cycleway, a 576 million to 1 scale model laid out along about 10km of old railway right of way. One can walk the solar system at three times the speed of light, or cycle it at ten times the speed of light; you're guaranteed to return from your journey younger than when you set out!

Walking or cycling from planet to planet is a wonderful way to appreciate in a physical way how much closer the inner planets are to the Sun than the outer planets. The first four planets are only a few meters along the path, but the distance from Jupiter to Saturn is about the same as that from the Sun to Jupiter, and the distance from Saturn to Uranus is about the same as that from the Sun to Saturn.

If you make it as far as Pluto, you can enjoy a well-deserved drink at the Greyhound Pub in Riccall. If you can't quite make it to the Pub at the End of the Solar System you can stop at the Naburn Station outdoor cafe just past Saturn, which boasts a 1/3 scale model of the Cassini Huygens spacecraft. When it's open, you can get homemade snacks and drinks; when it's closed the 'Trust Hut' stocks milk, water, juice, tea, coffee, hot chocolate, and sometimes biscuits in the tin. A shower, toilet and tap are available 24/7.

One evening years ago a friend and I cycled to Bishopthorpe (just outside the inner planets), stopping at each planet to read the information plaques to each other. 'Oh,' said the friend when we stopped at Mars, 'I didn't know Mars had moons.' 'How could you not know Mars had moons? Where have you been, under a rock?' 'Not to Mars, obviously.'

Website: <http://www.york.ac.uk/solar/>

Pictures



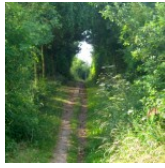
Large planet on the Solar System trail, York to Selby



Pluto on the Solar System trail, York to Selby



One of the planets on the Solar System trail, York to Selby



View of the Solar System trail, York to Selby



Model of Cassini-Huygens on the Solar System trail, York to Selby



Signpost of the Solar System trail, York to Selby



Earth the Solar System trail, York to Selby

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Rosalind Franklin's Cambridge, Cambridge, UK

[17 July 2013 BSHS Admin](#) [Leave a comment](#)

By Camilla Rostvik



The Eagle Pub, Cambridge

In 1952 Rosalind Franklin stared down upon her successful X-ray crystallography photo of DNA, unveiling for the first time the molecule's double-helix structure. Franklin's photo, the infamous *Photography 51*, quickly found itself in the hands of her colleague Maurice Wilkins, who passed it on to James Watson and Francis Crick. Unaware of this 'sharing' of the image, Franklin would support and applaud the pair when they announced their discovery of the structure of DNA in the Eagle pub in Cambridge. Dying at 37 from ovarian cancer, Franklin's legacy has always been left out of the pub and out of that important moment of discovery - until now. Newnham Fellow and Senior Lecturer in the Department of Geography, Dr Emma Mawdsley, together with local resident Norman Sanders organised a new plaque that joined the already existing one commemorating the men in 2013. It was unveiled on the sixtieth anniversary of Francis Crick and James

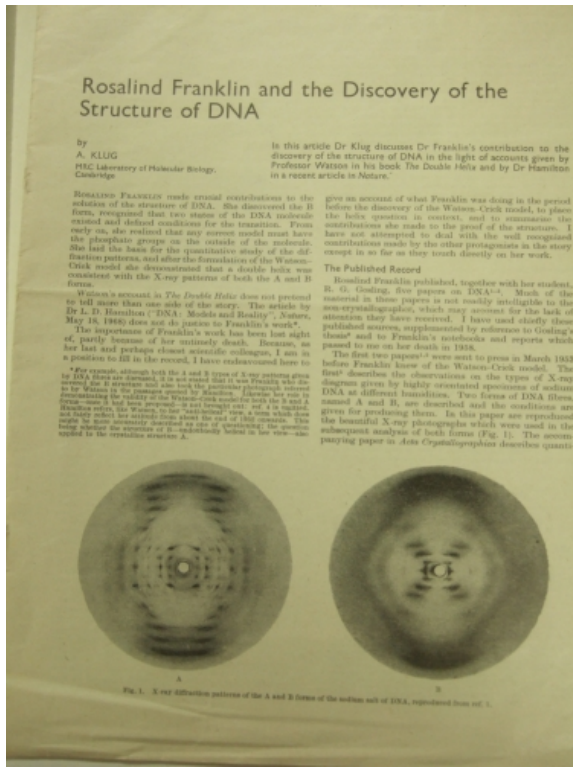
Watson's announcement. The new plaque thereby makes for an existing point of departure for any historian interested in Franklin, the DNA story or, indeed, the history of female scientists in the UK.

A 15 minute walk from the Eagle pub across the river and onto Sidgwick Avenue will lead you to the bustling female college of Newnham, where Franklin came to study chemistry in 1938. A bust by the sculptor Howard Bate and a postgraduate hall commemorates her memory on site, and at the Genome Centre a lecture theatre has recently been given her name. For anyone particularly interested it is worth making an appointment with Newnham College Archives to see and hold the wartime letters written from Franklin to her parents. These are moving and insightful writings that create a very different image of the woman than the one Watson and Crick painted of her as difficult and harsh.



Howard Bates, Rosalind Franklin sculpture.

A final Cambridge location for Franklin-enthusiasts can be found in the Churchill College archives, housed in the architecturally fascinating college designed by modernist architect Richard Sheppard. The sleek and fascinating archives houses the largest collection of Franklin's work, images and writings. Still there is a lot of work to be done regarding Franklin's life and legacy. By visiting Franklin's Cambridge at the Eagle, Newnham and in the Churchill archives, the visitor will hopefully be inspired by this inspirational, important and gifted scientist who happened to be a woman in a time of men.



Rosalind Franklin images and texts from the Churchill College Archives.

Further information:

Brenda Maddox, *The Dark Lady of DNA* W.W. Norton & Co, 2000.

Jennifer Glyn, *My Sister Rosalind Franklin*. Oxford: Oxford University Press, 2012.

The Franklin bust by Howard Bate at Newnham College, Sidgwick Avenue, Cambridge, CB3 9DF, UK.

The Rosalind Franklin papers at Churchill College, Storey's Way, Cambridge, CB3 0DS, UK.

2013 competitionchemistryDNA
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Bowes Museum, Barnard Castle, County Durham

15 July 2013 BSHS Admin [Leave a comment](#)

By Carolyn Dougherty



Bowes Museum, by [Alden Chadwick](#). Image licensed via Creative Commons [Attribution 2.0 Generic](#) license.

The Bowes Museum is the former home of John and Josephine Bowes, avid collectors of European art in the late 19th century. The building, grounds and collections are themselves worth a visit, but the draw for a historian of science and technology is the Silver Swan, an automaton the Bowes' purchased in France in 1872. It was built by English inventor John Joseph Merlin in the late 18th century, and first recorded as an attraction at the London Mechanical Museum of James Cox.



Silver Swan at Bowes Museum, by [Glen Bowman](#). Image licensed via Creative Commons [Attribution-ShareAlike 2.0 Generic](#) license.

Every afternoon a curator inserts a key in the stand below the glass box where the swan sits in a nest of silver leaves; its repertoire of motions takes about 40 seconds. The swan arches its neck, peers around, and preens itself, then bends toward the water in front of it, simulated by rotating glass rods, to snatch a fish; it lifts its head with the fish, then cranes its neck to swallow it.

Unfortunately because the swan is kept in a glass box higher than (at least my) eye level, it's difficult to get a close look at the water and the fish, which is a shame as part of the automaton's motions include the small silver fish darting away as the swan's beak breaks the water. The museum has, however, developed an excellent and detailed exhibit on the history and working of the mechanism, after an extensive restoration project in 2008. This exhibit includes a great deal of technical information on how the mechanism was constructed and how it works, how it had been mistakenly restored earlier in its history, and the work

involved in its 21st century restoration.



A close up of the head of the Silver Swan, by [David Robson](#).
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Address: Bowes Museum Newgate Barnard Castle County Durham DL12 8NP

Website: <http://www.thebowesmuseum.org.uk/>

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[de Havilland Aircraft Heritage Centre, London Colney, Hertfordshire](#)

[5 July 2013 BSHS Admin](#) [Leave a comment](#)

By Ruth Wainman



The Main Hanger - the De Havilland trainer aircraft, the Chipmunk, lies at the front, followed by the Vampire whilst the Mosquito can be seen at the back.

‘The Birthplace of the Wooden Wonder’- The de Havilland Aircraft Heritage Centre, London Colney, Hertfordshire

Aircraft are one of those technological creations that can stir strong emotions and reactions in people. Indeed the history of the aircraft industry simultaneously evokes a strange sense of nostalgia, heroism and glamour often shrouded in its own myths and legends as well as perpetuating them. No doubt that children’s magazines such as *Modern Wonder*, *Eagle* and *Look and Learn* with their intricate cross-section diagrams and action laden shots of aircraft and rockets did much to capture the imagination, particularly of boys, from an early age. In fact, the subject of the aircraft industry continues to spawn a whole host of documentaries and literature with titles such as *Empire of the Clouds: When Britain’s Aircraft Ruled the World* (2011) devoted to celebrating and preserving the memory of Britain’s glory days in the aircraft business with its host of fearless and glittering test pilots to match.

Behind some of the aircraft and the companies that produced them were men from typically privileged backgrounds such as Sir Geoffrey de Havilland, who used his name for the aircraft company he established in 1920 at Stag Lane, Edgware, and which later moved to Hatfield in Hertfordshire. Geoffrey de Havilland began his training at the Crystal Palace Engineering School followed by appointments designing and testing aircraft at the then Royal Aircraft Factory at Farnborough as well as heading design work for the Aircraft Manufacturing Company Ltd. (Airco) formed by George Holt Thomas. He later recalled his motivations as an aircraft designer in his memoirs, *Sky Fever*: ‘When I started on my first aeroplane the desire to do everything was almost fanatical and I felt almost a fierce resentment against outside help...I do know that the design and production of good aeroplanes has always been to me infinitely more important and rewarding than just making money’. The museum itself is located next to Salisbury Hall, a rather quaint looking country house where various personnel from the design, aerodynamics and stress departments worked on the wooden warplane, the Mosquito, otherwise affectionately known as the ‘Wooden Wonder’. Additionally, Salisbury Hall had another role to play- it was also once the location for the De Havilland Aeronautical Technical School, the training centre for the company’s engineering and trade apprentices.

In contrast to the rather serious tones conveyed about the practice of making aircraft by Geoffrey de Havilland, the back pages of the company magazine, the *De Havilland Gazette*, often took to lampooning the designs and names of many of its aircraft through cartoons and jokes. One such joke revealed all the names for the business jet the DH 125 which had been turned down including Deadbeat, Dither and Delinquent. We can be rest assured that this was a Company that could ‘manufacture’ a certain degree of humour as well as aircraft and aero-engines! Visitors can also be sure to view the majority of de Havilland’s most prominent

aircraft which are spread across the site. A smaller hanger is solely dedicated to displaying pre-war aircraft whilst the larger hanger houses aircraft ranging from the Mosquito to the post-war jet fighter, the Vampire, often noted by its pilots for resembling an 'aerial kiddy car'. A further two buildings contain various de Havilland aero-engines, (a subsidiary company was established in 1944 to produce aero-engines based at Stag Lane), alongside an exhibition dedicated to detailing the history of the de Havilland Company.



B.O.A.C. memorabilia inside the Comet simulator (Author's picture)

Most interestingly, the fuselage of one of the early versions of the first commercial passenger jet airliner, the Comet, is also on display which became infamous during its service due to a series of high profile crashes as a result of metal fatigue caused by the shape of its cabin windows. Furthermore, visitors can climb into the cockpit of a simulator from a later adaption of the Comet replete with memorabilia from former airline operator British Overseas Airways Corporation (B.O.A.C.). The Comet perhaps epitomized the 'jet-age' with its sleek and glistening metal exterior whilst it was also regarded as a prestigious hallmark of British aircraft design. The aviation weekly, *Flight*, even amusingly recorded: 'the Comet has caused the American housewife to choose English China; her husband bought a Jaguar automobile, and her son asked Santa Claus for a Raleigh bike for Christmas'.

Aircraft museums certainly raise interesting questions about how aeronautics is presented to the public especially when they form one of the most archetypal museums. Like many small scale aircraft museums, it serves a mostly didactic purpose aimed at enthusiasts as well as carrying out restoration projects on aircraft. In comparison, the presentation of aircraft in national museums such as the Science Museum have long taken into consideration the need to keep a balance between providing a historical narrative about aviation and the scientific principles behind flight. It has also made sure to interweave these aspects with the aircraft and aero-engines on display. Often missing from aircraft museums, however, are aspects which deal with the design and production processes of aircraft and the amount of people this typically involved, particularly when De Havilland also extended its manufacturing operations to Canada and Australia.



Aerial view of de Havilland Aircraft Heritage Centre, courtesy of de Havilland Aircraft Heritage Centre

The de Havilland Company started to come to an end as it merged with the Hawker Siddeley Group (1959) whilst its engine division went to Bristol Siddeley (1961) as a result of rationalization measures taking place within the aircraft industry. Nevertheless, the de Havilland name continues to live on around the world and it has certainly left its mark in areas such as Hatfield. Many of the road names as well as a hotel are named after de Havilland and its aircraft whilst the University of Hertfordshire also has a campus named after the Company. The de Havilland Aircraft Heritage Centre is just one of many aeronautical museums where you feel as if you have somehow embarked on a weird and wonderful journey to witness the continued homage to Britain's aircraft industry and its many creations first-hand.

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Museum Information

Address: De Havilland Aircraft Heritage Centre, Salisbury Hall, London Colney, Hertfordshire, AL2 1BU

Location: The museum is located next to Salisbury Hall at Junction 22, M25.

Website (includes opening hours): <http://www.dehavillandmuseum.co.uk/>

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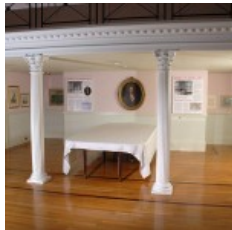
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By Ciaran Toal



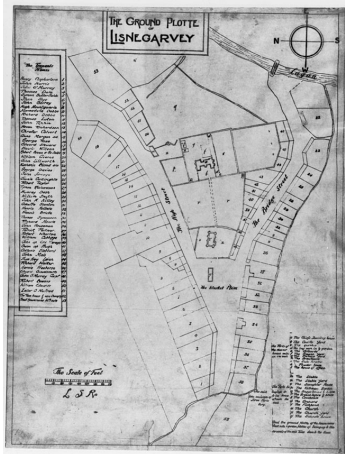
The 17th-century Market House, with 19th and 20th century additions.
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The Irish Linen Centre and Lisburn Museum (ILC & LM) researches, preserves and interprets all aspects of the history of the Irish linen industry, Lisburn and the surrounding area.



Fine Irish damask
on display in the
Assembly Room,
Lisburn.
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The Museum and its collections are housed in the old Market House, an late seventeenth-century building, since heavily modified. The town's merchants sold their wares and produce and sought shelter in and around the ground floor of the building, and John Wesley preached here in 1756 and 1789. The first floor Assembly Rooms played an important role in the social and political life of Lisburn, hosting regular soirees, balls, dance classes and political meetings throughout the eighteenth and nineteenth century.



The 17th-century ground plot for Lisnagarvey (Lisburn).

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The surrounding Market Place was first laid out in Sir Fulke Conway's plan of the town in the 1620s, and was the later site of the city's bustling linen market. Here weavers sold vast quantities of brown, unbleached, linen. William of Orange, on his way to the Boyne, 'took refreshments' in Market Place in 1690, while United Irishmen swung from gallows erected here following the unsuccessful rebellion of 1798. At an entry just off nearby Castle Street, James Wallace installed Ireland's first steam engine, from Watt's factory in Glasgow, in 1790.

From the museum it is only a short walk to Castle Gardens. Although the original castle is no longer standing, part of the walls and the impressive seventeenth-century terrace, including the gazebo and bakery, remain. The Gardens contain a monument to Sir Richard Wallace, local MP, landowner and successor to the Conway's, whose collection of art and that of his father's, the 4th Marquess of Hertford, largely makes up the [Wallace Collection](#).



Poster for the Island Spinning Co., Lisburn.

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Castle Gardens affords a panoramic view of much of Lisburn and the wider Lagan Valley, and it is possible to pick out remnants of the region's industrial past. Just east of the Gardens, for example, lies the former site of the Vitriol chemical works (c.1760-c.1840) and later the Island Spinning Company Ltd (1867-1983), responsible for flax spinning and thread making. The island, bounded by the River Lagan in the north and the canal in the south, is now occupied by [Lisburn City Council](#), but the lock, through which over 180, 000 tons of linen, coal and dry goods travelled every year, remains.



Coulson's factory, Linenhall Street.
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Nearby, also, is the site of the iconic Coulson's factory. From 1766 up until the 1960s the company, housed in a distinctive thatched building, produced fine damask linen, which was exported internationally. Coulson's received Royal patronage in 1811, and a gold medal for their linen napkins and tablecloths at the Great Exhibition, Crystal Palace (1851).



[The Barbour's Hilden Mill today.](#)

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South east of Castle Gardens, and just over a mile east of the Island, is the site of the Hilden mill complex, at one stage the world's largest linen thread mill. Owned and operated by the Barbour family, in some form, from 1842 to the 1960s, the complex is a patchwork of workshops for spinning and the production of linen thread. The Barbour family, in the tradition of many nineteenth-century industrialists, built a model village, consisting of housing, a school and a community hall, to support their workforce. Although abandoned, the mill is [still standing](#), and provides a glimpse back into the Lagan Valley's industrial past. A short distance away is Glenmore bleach green. In constant use from the eighteenth century, the green was used to treat – through the use of sulphuric acid, and an extended drying period in the sun – the brown, untreated, linen. In 1887 the site at Glenmore, under the ownership of Richardson, Sons & Owden turned out over 300,000 linen webs.



Drying linen at Glenmore Bleach Green. Image in the public domain.



'Flax to Fabric': A weaver's cottage.
© Copyright ILC&LM.

A thorough overview of the Barbour family, a sample of Coulson's damask linen, or indeed the broader history of the linen industry in the Lagan Valley, is provided at the ILC & LM's permanent 'Flax to Fabric' exhibition. Visitors are guided through the history of linen and its manufacturer, from its use in Egyptian burial rites, its biblical significance - fine linen is mentioned in Genesis - right through to its cultivation in Europe in the Middle Ages. The Irish linen industry developed under various political and technological pressures, and the influence of English landlords, Dutch spinning techniques, Quaker labour and Huguenot self-promotion, is outlined in the exhibition. A recreated 18th-century cottage scene gives visitors a sense of the lives of workers in Ulster's domestic linen industry before industrialisation. The entire family was involved in the process. Women spun the flax into yarn - visitors can try this for themselves - while children wound it onto bobbins. Weaving was left to the men, and usually took place in a separate part of the cottage. The ILC & LM have a workshop dedicated to weaving, with a full-time staff operating a series of looms, including two Jacquard looms. Jacquard's design was revolutionary, significantly speeding up the weaving process, and his innovative use of punched cards to control individual threads of the warp allowed complex damask patterns to be wove. His invention was an important influence on Charles Babbage, and the Jacquard system is viewed as a '[first-step](#)' towards the development of the modern computer. Demonstrations are given daily.



Jacquard Looms in the weaving workshop. Note the mechanism for reading the punched card on top.

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An original Sybil Connolly creation.

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The linen industry played an important role in the geographical, social and industrial heritage of Ulster, and this is explored through presentations of *The Wee Blue Blossom*, a 1930's film examining the traditional harvesting and spinning of flax, and *The Irish Interlude* (1955), a nostalgic look at industrial-life in post-War Belfast. Irish linen was sold worldwide, and the Museum houses a collection of some of the finest samples, including a piece of intricate damask woven at Coulson's to commemorate Queen Victoria and Albert's 1849 visit to Belfast, as well as fine embroidered muslin from the prestigious Belfast retailers Robinson & Cleaver. The work of Sybil Connolly, once Ireland's leading clothes designer, is also celebrated in a display that shows off a number of her linen creations. Her work was worn by the likes of Jackie Kennedy, Queen Elizabeth and Liz Taylor.

The Market House gallery hosts regular displays and exhibitions on local history, from the Titanic to '17th-century Lisburn', or even highlights from the Museum's collections in the 'Curator's Choice'. The ILC & LM has a dedicated library and research service, and its education officers run a range of free workshops for school groups, colleges and community organisations.

Visitor information:

The museum is open 9-5pm Monday to Saturday, and admission is free. Group tours of the museum and Castle Gardens can be arranged. The Museum shop sells a wide range of linen and craft goods, as well as books on the history of the industry and the Lisburn area.

For more information visit: <http://www.lisburncity.gov.uk/irish-linen-centre-and-lisburn-museum/>

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[**Kew Observatory, Richmond**](#)

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By Lee Macdonald



Side view of Kew Observatory

Kew Observatory is close to the River Thames in the Old Deer Park, Richmond, Surrey. It is not open to the public, but can be viewed through the metal gates to its enclosure from the end of a road leading to it through the Royal Mid Surrey Golf Club. (Beware of flying golf balls!) In the middle years of the nineteenth century Kew was a major centre for research into Sun-Earth connections, geomagnetism and meteorology and from 1900 to 1902 it was briefly the first home of the National Physical Laboratory, now at Teddington.

On 3 June 1769 the second transit of Venus of the eighteenth century occurred. This event was partially visible from the UK and King George III commissioned the building of the observatory in the Old Deer Park. On 3 June the sky cleared just in time for the transit. The King, Demainbray and a small group of others successfully observed the ingress of Venus onto the Sun's disc. In the 1770s Kew was the site of the successful testing of John Harrison's marine chronometer that enabled sailors to find their longitude at sea.

In 1841 the government decided to stop maintaining the observatory and offered the use of the building to the Royal Society. In March 1842 the Royal Society turned down the government's offer, but by then the Royal Society had a rival in the form of the British Association for the Advancement of Science (BAAS), who quickly made moves to acquire it. Under the BAAS, Kew Observatory was soon re-established, initially concentrating on meteorology. The main mover and shaker behind the scenes at Kew under the BAAS was the geophysicist and Royal Artillery officer Edward Sabine. As well as meteorology, in the 1840s he gradually introduced geomagnetic research at Kew as the BAAS's limited budget allowed.

The Sun and its influence on the Earth

Soon after Kew was acquired by the BAAS, German amateur astronomer Heinrich Schwabe discovered that the number of spots seen on the Sun varies in a cycle of approximately 10 years. In the early 1850s Sabine discovered that Schwabe's sunspot cycle exactly matched a 10-year cycle of variations in Earth's magnetic field. Astronomers quickly became interested in observing the Sun. In 1856 the printer, chemist and amateur astronomer Warren De La Rue designed a 'photoheliograph', a special telescope for recording photographic images of the Sun. This was used at Kew to take daily solar images from 1859 until the early 1870s. Solar activity was measured by working out the total surface area of the Sun covered by sunspots on the photographs.

In 1859 Kew played an important role in discovering a connection between what are now known as solar flares and disturbances in the Earth's magnetic field. On 1 September of that year the magnetometers at Kew recorded a brief but very noticeable jump in the Earth's magnetic field at exactly the same time as a flare was observed by two amateur astronomers.

In 1860 the photoheliograph was briefly removed from Kew to a site in Spain, where De La Rue used it to take some of the first good pictures of a total solar eclipse. He used these images to show that prominences are part of the Sun and do not, as some believed, belong to the Moon.

Meteorology and the National Physical Laboratory

Ever since it was acquired by the BAAS in 1842, meteorology was a major part of the observational programme at Kew. Systematic records were kept of the main meteorological phenomena such as temperature, atmospheric pressure and humidity and experiments were made in using automatic instruments to record the weather.

Meteorology itself underwent major changes in the years after 1852. In 1854 the Board of Trade established a 'Meteorological Department', now known as the Met Office, initially to provide weather information to ships at sea. From the earliest days of the Met Office, Kew was vital to its work. It became the Office's central observatory, from which its best observations were obtained. Instruments to be used on board ships were sent to Kew for testing, to ensure they all complied with the same standard of accuracy. The testing of instruments became a major part of the work at Kew, especially towards the end of the century. From the 1870s instruments verified at Kew bore a distinctive monogram, which became an international symbol of instrument quality.

Meanwhile, the BAAS was finding Kew an increasingly expensive drain on its limited finances and so in 1870 it was taken over by the Royal Society. In the 1890s calls intensified for a national physical laboratory for calibrating instruments on a large scale and establishing standards of measurement. Kew Observatory, with its existing calibration programme, was the obvious location and the National Physical Laboratory was officially established there in 1900. However, the building soon proved to be too cramped for the purpose and local residents objected to new buildings going up in the Old Deer Park, so a new site had to be found. In 1902 the laboratory was moved to new premises at Bushy House, Teddington, the headquarters of the NPL today.

Kew Observatory in the 20th century and beyond

The solar programme was moved to Greenwich in 1873 and geomagnetic observations were discontinued in 1925. In 1910 the observatory was taken over by the Met Office and it remained a major observatory and research station in meteorology for much of the twentieth century. Sadly, government cutbacks forced the Met Office to close down operations at Kew at the end of 1980. Until 2011 the building was leased by the Crown Estate (its original owner) to the holding company of Autoglass, who used it as offices. Now (2013) it is about to be converted and modernised inside, before being sold as a kind of millionaire's dream property. As a listed building, however, its external appearance cannot be significantly altered.

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Surgeons' Hall Museums, Edinburgh, Scotland

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By Helen Parkinson



Surgeons Hall Museum, Edinburgh, by [I Like](#). Image licensed via Creative Commons [Attribution-NonCommercial-NoDerivs 2.0](#) license.

Located in the heart of Edinburgh, near the University of Edinburgh's Old College, is the Surgeons' Hall Museums, a must-see collection of oddities and artefacts that collectively bear witness to how far we've come in our understanding of the human body and all that ails it.

The current museum building - a grand edifice with classical pillars - was built in 1832 by renowned architect William Playfair, but the idea for the museum dates back to 1699, when Edinburgh's Royal College of Surgeons made a collection of 'natural and artificial' curiosities available to the public. This description is still applicable.

The current museum features six permanent exhibitions: the pathology museum, which contains one of the largest collections of pathological anatomy in Europe; the history of surgery; the dental collection; 'The Real Sherlock Holmes', which focuses on Sir Arthur Conan Doyle's friendship with Joseph Bell of the Royal College of Surgeons of Edinburgh, who was the author's inspiration for Holmes; 'Sight for Scotland: 100 Years of Ophthalmology'; and 'Skin Deep: The Restoration of Form and Function', which examines the history of plastic surgery, a practice that amazingly dates back to 800BC.

Each exhibit at Surgeons' Hall is impressive or surprising in its own way: the dental exhibit, for example, is one of the most significant in the UK and contains rare dental artefacts from around the world, in addition to some of the crudest historical dental tools imaginable. Meanwhile, the history of surgery takes visitors through some of the key medical developments of the last several hundred years, from pre-anaesthesia surgery (imagine that - or don't) to the discovery of chloroform as an anaesthetic, to the development of

antiseptic by Joseph Lister in Scotland.

One of the delightful things about Surgeons' Hall is that the science is made accessible to the general public. Quirkiness is a prevailing virtue of this museum, from telling about a quack eye doctor who blinded hundreds of patients throughout Europe - potentially including Handel and Bach - on visits he'd make in his carriage that featured painted eyeballs, to all the skeletons and body parts you can handle.

Temporary exhibitions at Surgeons' Hall often focus on individual contributors to science and medicine, usually ones who have an Edinburgh connection; in 2012, Surgeons' Hall featured a large exhibition on Joseph Lister, while the year before it was Sir James Young Simpson, an Edinburgh medical pioneer who introduced the use of general anaesthesia during childbirth, among other developments. If your next holidays take you to Edinburgh, Surgeons' Hall is a worthy stop for anyone, especially scientists, physicians and those interested in history.

Further information:

Surgeons' Hall Museum
Royal College of Surgeons of Edinburgh
Nicolson Street
Edinburgh
UK
EH8 9DW

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