Travel Guide to Historic Science in Devon and Cornwall

www.bshs.org.uk/travel-guide
A lot of important science has happened in Devon and Cornwall, including medicine, technology and natural history. This guide, produced in conjunction between the British Society for the History of Science (BSHS) and the University of Exeter, celebrates those achievements. All the sites described here can be visited and enjoyed by anyone. Full versions of these articles are available at the BSHS Travel Guide (www.bshs.org.uk/travel-guide).

Contents

The Royal Albert Memorial Museum 1
Poltimore House 2
Medieval Water System 3
Meteorological Office 4
Streatham Campus Arboretum 5
Bill Douglas Centre for the History of Cinema and Popular Culture 6
Exeter Cathedral Library 7
Devon Record Office 8
Norman Lockyer Observatory 9
Marine Biological Association 10
The Jurassic Coast 11
Cornish Mines 12
Cornish Telegraphy 13
The magnificent Royal Albert Memorial Museum (RAMM) was founded by local MP Sir Stafford Henry Northcote (1818-1887), perhaps inspired by his role in running the Great Exhibition of 1851.

Today it holds a collection of approximately 1.5 million objects, including one of the largest natural history collections in the country. Among the most cherished objects is Gerald, the famous bull giraffe. Gerald was bagged by Charles Victor Alexander Peel (1869-1931), an enthusiastic big game hunter who brought his collection with him when he moved to Devon.

The botany collection comprises thousands of plant specimens from around the world. Many of these came to Exeter thanks to horticultural firm Veitch & Sons. Sir Harry James Veitch (1840-1924), who founded the company, grew up in Exeter and is now most famous for promoting the Royal International Horticultural Exhibition of 1912, the first Chelsea Flower Show. Specimens from the herbarium can be viewed by arrangement with the museum.

The RAMM is currently undergoing major redevelopment and its main building on Queen Street, Exeter, will reopen in December 2011.

Further information: www.rammuseum.org.uk

About the author:
Dr Jana Funke is Associate Research Fellow at the University of Exeter.
Poltimore House, near Exeter, is one of the most fascinating historic estates in the South West of England and is of particular interest for visitors keen to learn more about medical history.

Between 1945 and 1975, Poltimore House served first as a private hospital and then as Exeter’s Poltimore Hospital, run by the National Health Service (NHS). During the time of the post-war baby boom, Poltimore House was used as a busy maternity hospital, but in 1976 the house and much of the surrounding estate were eventually sold.

The Poltimore House Trust is today involved in a research initiative to understand better the estate’s medical past, a project that includes a substantial oral history element. With the support of the East Devon District Council and English Heritage, the Trust has started to restore Poltimore House and hopes to establish it as a new landmark in Devon.
Medieval Water System, Exeter

Dating from the 14th century, Exeter’s underground passages were built to house the lead pipes that brought fresh water from natural springs outside the city wall into the city centre.

The passages lie between four and six metres underground and stretch 425 metres across the city centre, forming a stone-vaulted network big enough for workers to climb underground to carry out repairs. The first passage was built between 1346 and 1349 to serve the city’s cathedral, and a second, constructed between 1492 and 1497, was for the wealthier elements of the city’s growing population. For everyone else water was dispensed through an ornate public fountain called The Great Conduit, at the junction of South Street and the High Street (now demolished). Further changes were made following an outbreak of cholera in 1832, when a healthier water supply was developed.

The network played its role in times of war, being blocked off during the Civil War to prevent its being used as an entrance to the city, and acting as a bomb shelter during the second World War.

80% of the tunnel network survives today and much of it can be explored with a travel guide.

Further information: www.exeter.gov.uk

About the author:
Debbie Palmer is a research fellow at the Centre for Medical History, University of Exeter.
The British Meteorological Office was originally set up under Robert Fitzroy, ex-captain of HMS Beagle, as a service to mariners. After a disastrous storm in 1859 he established a network of fifteen coastal stations, which gave warnings of approaching storms, and this eventually led to the daily shipping forecast. Developments in telegraphy and the expansion of the observational network meant that regular weather forecasts could be provided for the general public.

Weather forecasts still play a role in military operations and provide essential information for the RAF, and thus the Met Office is an executive agency of the Ministry of Defence. More recently it has started to give warnings about weather conditions which may affect people’s health. The Met Office also uses Doppler radar to warn of the likelihood of floods.

In 2003 the Met Office moved from Bracknell to Exeter, where the Hadley Centre is devoted to climate prediction and research. The Met Office headquarters contain a library, open to the general public, and a display of meteorological equipment.

Half a mile away, the National Meteorological Archive shares premises with the Devon Record Office, holding rare weather books, weather records, ships’ logs and historic images. The archive can be used by anyone but it is advisable to book in advance.
Streatham Campus Arboretum, Exeter

The University of Exeter Streatham Campus is set within an arboretum, ponds and gardens. There are twenty-five sculptures on the campus, including works by Barbara Hepworth.

The arboretum has its origins in the 1860s, when the grounds now surrounding Reed Hall were laid out by the Veitch family. The Veitchs were famous for running plant nurseries in Europe in the 19th century, and along with Chelsea, Exeter became the main base for their plant hunters, collectors and nurserymen.

The 1960s and 1970s saw a major re-landscaping of the main campus, but always with the aim of maintaining the diversity and exotic plants which had initially been brought in by the Veitchs.

Today, a great effort is made in terms of biodiversity throughout the campus grounds. Bird and bat boxes are being installed, and a ‘bioblitz’, or quick census of species, was conducted in 2010 by staff and students. Species such as kingfisher, snipe and bumblebees were spotted, and today the campus is actively managed to protect and encourage its rich biodiversity.

Further information: www.exeter.ac.uk/eventexeter/garden-tours.php

About the author: Isabelle Charmantier has been a Research Fellow at the University of Exeter since 2008.

Messrs Veitchs’ Nepenthes house as illustrated in the Gardeners’ Chronicle, 1872.

Autumn colour, Streatham Campus. Photo: © Derek Harper.
The Bill Douglas Centre for the History of Cinema and Popular Culture is a public museum and a research and scholarship facility at the University of Exeter, unique in the UK in its breadth and range.

The collection stretches back to the 18th and 19th centuries when optical toys preceded the pleasures of cinema. From kaleidoscopes to 3-D stereoscopes to toys like the praxinoscope and phenakistoscope (where the use of mirrors creates an illusion of movement from still drawings), these were the beginnings of animation. The principles of projection were quickly co-opted for popular entertainment through the camera obscura and particularly the magic lantern.

Cinema itself began in the 1890s with the invention of Edison’s kinetoscope. The BDC holds materials from Edison’s launch, and its successor, the mutoscope or ‘What the Butler Saw’ machine. The Lumière brothers’ Cinématographe was especially important in dictating the technology of film entertainment, and the BDC has one of the world’s few surviving examples. The BDC’s holdings show how innovations such as colour or special effects were being developed as early as the first decade of the twentieth century.
The building of Exeter Cathedral started in 1050, when Bishop Leofric moved his official seat from Crediton, seven miles to the North-West of Exeter, to the city of Exeter. At the same time, Leofric founded the Cathedral Library and furnished it with books.

The Library comprises numerous scientific and medical works, including a large section of the library once housed in the Royal Devon and Exeter (RD&E) Hospital, founded in 1741. The latter mostly contains books from the rich personal library of the local physician Thomas Glass (1709-1786).

The scope of the collection is wide: it includes straightforward medicine and science topics, but also numerous peripheral subjects, such as astrology and alchemy, phrenology, agriculture, navigation, and wine-making amongst others.

The Cathedral Library will be closed throughout 2011 while it undergoes an upgrade of its premises.
The Devon Record Office, as the record-keeping department of Devon County Council, was founded in 1952 and incorporates the Exeter City Record Office, which had been collecting records from all areas of Devon since 1946.

The Devon Record Office now collects and preserves all types of historical records relating to the county of Devon, the city of Exeter, and East, Mid and South Devon, including Torbay. These include the records of the parishes and of innumerable individuals, families, estates, businesses, societies, chapels and schools. It is also the diocesan record office for the Diocese of Exeter. Public records including those of the Royal Devon and Exeter Hospital (from 1743), the West of England Eye Infirmary (from 1808), and the County Gaol (from 1821) are also available to searchers.

All documents are kept in specially constructed strong rooms, and public access is provided in the main search room.

The National Meteorological Archive is open to all but you must make an appointment first.

Further information: www.devon.gov.uk/record_office

About the author: Nicole-Kerstin Baur is a Research Fellow at the Centre for Medical History in Exeter.
Norman Lockyer was the founder of *Nature* and a Victorian amateur astronomer who became the director of the Solar Physics Observatory at South Kensington and the first professor of astronomical physics in the Royal College of Science in 1887. In 1912 he began building an observatory on the hill above his house near Sidmouth, drawing on donations of money and equipment.

After WW2 the University College of the South West of England (now the University of Exeter) agreed to support the observatory’s astronomical activities for a time. The site was eventually bought by the East Devon District Council in 1986 since when it has gone on to thrive for both astronomers and the public. Its principal facilities include three Victorian refracting telescopes and two modern reflectors; a planetarium; equipment for amateur radio reception and transmission; a meteorological station; an exhibition area; a library and a lecture theatre.

**Further information:**
http://projects.exeter.ac.uk/nlo

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*Norman Lockyer Observatory and James Lockyer Planetarium.*
*Photo: © Paul Lang.*
Marine Biological Association, Plymouth
The Laboratory, Citadel Hill, Plymouth, PL1 2PB

Founded in 1884, the MBA is one of the UK’s leading research institutes, set up to study marine life and fish populations. They have monitored pollution and plankton for many years and have always had a research vessel. In addition to their own work, the laboratories have consistently attracted visiting research workers, including 13 Nobel Prize winners and 170 Fellows of the Royal Society.

The MBA library is probably the most complete in this country in its coverage of marine biology and oceanography. As well as academic journals and special collections, it also contains the personal libraries of several eminent members, and many bound volumes of many expedition reports. The MBA also holds considerable quantities of ‘grey’ papers, which have not been published, and a large amount of archival material.

Please contact the librarian before a visit if you are not already a member. The MBA’s aquarium is now part of the nearby public attraction, the National Marine Aquarium.

Further information: www.mba.ac.uk/nmbl

About the author: Joan Price taught chemistry for many years and has recently completed an MA in Maritime History at Exeter.

Billingsgate Fishmarket in the late nineteenth century; the impact of this trade upon fish populations prompted the MBA’s foundation in 1884.
The coastline of Dorset and East Devon has fascinated students of nature since the birth of modern science in England some 350 years ago.

During the nineteenth century geological savants patronised the Dorset area: William Buckland, Henry de la Beche and William Conybeare chief amongst them. However, the collector of fossils on the Jurassic Coast who is best known today is almost certainly Mary Anning (1799-1847). Anning picked amongst the rocks around Lyme Regis in the hopes of selling them and thus saving her family from the poorhouse. She found the world’s first complete Plesiosaurus in 1823 and the UK’s first Pterodactyl some five years later. Anning’s collecting helped to spawn a veritable Dino-mania amongst the Victorians. Ever since then the Jurassic coast has swarmed with professional palaeontologists and small children alike, hoping to find a fossil of their own.

Rich in both history and science, these 95 miles of wonderful coastline were granted World Heritage Status in 2001, the first British site to gain the honour.
The mining of tin and copper was undertaken in Cornwall as far back as the Bronze Age, but the practice remained largely unchanged up to the eighteenth century. The introduction of the use of gunpowder in the 1690s began to change all this, helping the sinking of shafts and the driving of levels. Thomas Newcomen’s ‘fire engine’ promised to assist in the problem of flooding in the 1710s but the cost of running the engine proved prohibitive.

The mining industry improved in 1777 when James Watt came to Cornwall. His engines easily drained the water that the older engines had failed to, and used a quarter of the fuel in the process. The demand for tin-plate in the British domestic market in 1800 also fed a tin boom in the nineteenth century, and served as a ready alternative when copper deposits began to run out by mid-century.

The impacts of mining were wide-ranging. The population of Cornwall almost doubled, while towns expanded and ports became crowded with ships with orders from around the world. Iron foundries and manufacturing industries developed in line with the enormous increase in demand for engines and machinery; transport and communications improved beyond recognition.

Cornwall was devastated by the collapse of the industry during the twentieth century. However, its fortunes have improved recently with the Cornwall and West Devon Mining Landscape being granted UNESCO World Heritage status in 2006.

Further information: www.cornish-mining.org.uk

About the author: Dr Simon Naylor is Senior Lecturer in Historical Geography at the University of Exeter.
Cornish Telegraphy

Porthcurno Telegraph Museum, Eastern House, Porthcurno, Penzance, Cornwall, TR19 6JX
Marconi Centre, Poldhu Nr Mullion, TR12 7JB
Lizard Point, Lizard, Cornwall, TR12

Anyone interested in the history of communication is truly spoilt for places to visit in the Cornwall.

The Porthcurno Telegraph Museum is the only working submarine cable station in the world and also holds an enormous collection of instruments, artefacts and archival materials relating to the history of submarine cable telegraphy from the 1850s to the present day. The site also has underground tunnels built in the Second World War to safeguard the crucial British imperial telegraphic network against enemy attack.

The Marconi Centre is located on the site where Marconi’s first transatlantic wireless messages were transmitted in December 1901. The museum boasts a splendid collection of early wireless equipment, some excellent audio-visual material, and a hugely knowledgeable staff.

Not far from this is another Marconi site owned by the National Trust: the Lizard Wireless Station. This is the original wooden building in which Marconi and his colleagues conducted experiments. The museum displays replicas of the induction coil, spark-gap, Morse key and other equipment used by Marconi.

Further information:
www.porthcurno.org.uk
marconi-centre-poldhu.org.uk
www.lizardwireless.org

About the author:
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The first ever SOS, received at the Lizard Wireless Station in 1910. Photo: © Lizard Wireless Station.