



Royal Greenwich Observatory

Science and Art in a London Treasure

David Green, May 27, 2009

Probably every expatriate Englishman thrills a little at hearing the words Greenwich Mean Time intoned by the BBC. Counterintuitive as it may be, it induces a feeling of being at the centre of the world. The Royal Observatory at Greenwich, standing sentinel on a hill over-looking the River Thames, in south London, is the source of the term. Britain, after the restoration of the monarchy in 1660, was blessed with a plethora of brilliant scientists (or natural philosophers as they were known at the time); Robert Boyle, Christopher Wren, Isaac Newton, Edmond Halley, John Flamsteed and Robert Hooke were the apex who worked in a society that believed in the efficacy of scientific innovation. Supported by the King, Charles the II, the Royal Society shed its secrecy and became a powerful force for change. In 1675 the King commissioned a Royal Observatory, principally to study astronomy as an aid to navigation or, in the words of the appointment, "*to apply himself with the most exact care and diligence to the rectifying of the tables of the motions of the heavens, and the places of the fixed stars, so as to find out the so much desired longitude of places for the perfecting of the art of navigation*". Britain's naval supremacy was just starting and this was seen as essential to the national interest.

Greenwich Park had been a Royal Residence for many years, Greenwich Palace was the birthplace of Henry VIII, as well as the home for many of his mistresses (the six wives lived in London, Hampton Court or Windsor) so there was no problem with acquiring land. The chosen architect was Sir Christopher Wren, himself an astronomer of note as well as the architect for the rebuilding of London's churches after the Great Fire of 1666. Sir Jonas Moore, then Surveyor-General of the Ordnance Office, was a vigorous proponent of the project and was assigned the task of raising funds and providing the instrumentation. At a cost of \$520, some \$20 over budget, Flamsteed House, named for the first Royal Astronomer and occupant, was built on the ruins, and using many of the materials, of Duke Humphrey's Tower. Over the years there have been many additions, but this beautiful piece of architecture is still home to 350 years of

scientific achievement.



To solve the problem of calculating longitude a reliable maritime clock was needed, not an easy task considering the great fluctuations of temperature, humidity, and pressure encountered on a long, rough sea voyage. So intractable did the problem seem that both Newton and Huygens doubted it could be achieved. The urgency and necessity reached a crescendo when the enormous sum of £20,000 (nearly \$5 million in today's money) was offered to the inventor of such a device. A clockmaker, John Harrison, laboured most of his life, finally producing a marine chronometer in 1761, called H4 as there had been three previous attempts, of great beauty and amazing accuracy. This plate sized 'watch' is still on display at the National Maritime museum in Greenwich.

Soon after its inception, the Royal Observatory was designated the keeper of time (reminiscent of Dr. Who), and Moore donated two clocks featuring balance springs and 13 foot pendulums, they, too, can be seen in the Octagon Room with its twenty foot high ceiling.

The measurement of time around the world was based on noon in London, more exactly a brass strip laid in the courtyard which came to mark the Prime Meridian of Longitude, or 0°. This has since been replaced by a stainless steel marker and, in 1999 to commemorate the second millennium, a green laser light shines due north along the meridian. A time ball was installed in 1833 which still drops every day at exactly 1 p.m., so that everyone can synchronize their watches. From 1924 onwards, the BBC broadcasts an hourly time signal via its world service from this very place. Greenwich Mean Time has been replaced in science by Universal Time, since 1954, but it is still nice to imagine you are standing on something of great import, even if it is purely conceptual.

The museums are a wealth of fascinating milestones along man's scientific path of advancement, in 2007 a new planetarium, additional galleries and an updating of the educational facilities were opened. The 28 inch Grubb Refracting Telescope, built in 1893, is still the largest of its kind in the U.K. While at the gate is the Shepherd clock, an early electric slave clock. The sylvan setting, 18th century architecture and proximity to the centre of London all make this historic place a wonderful spot to visit.

Sources : <http://www.oxforddnb.com/public/dnb/19137.html> Sir Jonas Moore
Greenwich Observatory: ... the Royal Observatory at Greenwich and Herstmonceux, 1675-1975. London: Taylor & Francis, 1975 3v. (Vol. 1. *Origins and early history (1675-1835)*), by Eric G. Forbes. [ISBN 0-](#)

[85066-093-9](#); Vol. 2. *Recent history (1836-1975)*, by A.J. Meadows. [ISBN 0-85066-094-7](#); Vol. 3. *The buildings and instruments* by Derek Howse. [ISBN 0-85066-095-5](#)).

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In 1894 a Frenchman, Martial Bourdin (a prophetic name) became Britain's first international terrorist by trying to blow up the Observatory with a home made bomb.