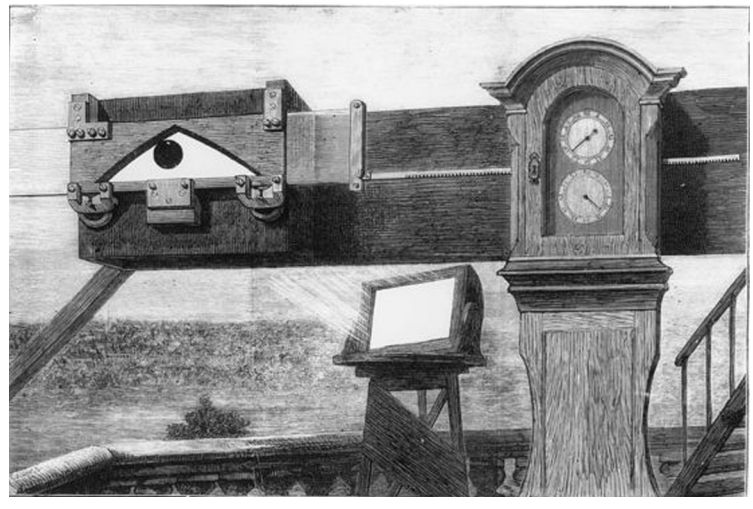
London Meeting Lecture Thursday 20 September 2012

'Clocks for the Transits of Venus'

by Matthew Read

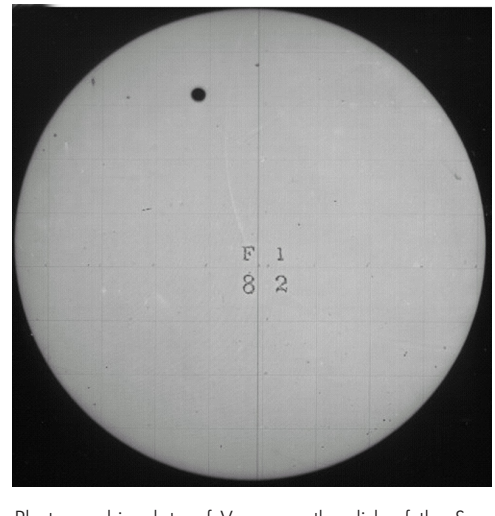


Practice apparatus for use in Greenwich Park. Image *Illustrated London News*.

In the early seventeenth century Johannes Kepler determined new laws of planetary motion. This made it theoretically possible through observation to calculate the relative inter-planetary distances of our solar system, but not equally accurately the overall scale.
It was the second Astronomer Royal, Edmund Halley, who came to understand that by close observation of the forthcoming transits of Venus (Venus crossing the disk of the Sun) the Earth to Sun distance could be more precicely derived. These observations would rely on impeccable method and quality instrumentation, primarily in the form of clock and telescope. Famously, Captain James Cook's first voyage to the South Seas had as its primary aim to observe the transit at Tahiti. Much was learned from eighteenth century transits and their resultant frustrations, yet patience was the order of the day as the next opportunity to gather data would not occur until the latter part of the nineteenth century.

This lecture looks mainly at the clocks used during that period, and reflects on what became such an intractable and controversial problem. Namely, that not only were some of the complex mathematical calculations never fully resolved, but the human and emotional cost became, in cases, the ultimate price for man's scientific endeavour.

Matthew Read, Council member of the AHS, is Clocks Programme Tutor – West Dean College.



Photographic plate of Venus on the disk of the Sun, 1882. Image National Maritime Museum.