Chapter 2
The Proof of the Pudding

William Andrewes

Abstract In 1775, 2 years after receiving the second half of the longitude reward, John Harrison (1693–1776) published a book, which, among other things, described a pendulum clock that could keep time to 1 s in 100 days. His claim of such unprecedented accuracy for a clock with a pendulum swinging in free air (i.e., not in a vacuum) was met with ridicule both at the time of its publication and for the next two centuries.

This paper describes the remarkable journey of clockmaker Martin Burgess, who set out with a small group of specialists 40 years ago to prove that Harrison's claim was true. A clock build by Burgess according to the principles described by John Harrison was placed on an official trial at the Royal Observatory, Greenwich, in March 2014. After the first 100 days, Burgess' clock was just half-a-second fast. After 2 years of continuous, undisturbed run, its maximum deviation has been 2 s. Currently, it is only 1 s ahead of the atomic time signal. Had there not been such animosity between John Harrison and the Astronomer Royal Nevil Maskelyne, the Royal Observatory at Greenwich could have had a time standard in the eighteenth century that was not realized until the early twentieth century.

Keywords Clock • Greenwich • John Harrison • Longitude • Martin Burgess • Nevil Maskelyne • Precision horology • Time • Timekeeping

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