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The scientific community *certainly* wanted better timekeepers - we know that throughout the history of science, practitioners like Maskelyne were always looking for better, more accurate instruments. Specifically in Maskelyne's example, he and the Board of Longitude on which he sat, were constantly searching for improved designs for pendulum regulators. And they were prepared to spend considerable sums of money to encourage improvements, a practice which continued throughout the nineteenth century with George Airy and into the twentieth century. Every observation on the transit instrument required not only accurate measurement of declination, using the degree scale on the instrument, but Right Ascension - the sidereal time at which the body being observed transited the meridian. The more accurate the regulator, the more accurate the observation, and errors in the regulator translated directly into errors of star position, so accurate timekeeping was vital, especially given variable weather conditions in the UK and the likelihood of many days between checking the clock by observation of clock stars.

## **The Theory**

The excellent articles by John Haine and Andrew Millington provide a fascinating mathematical model for how Harrison's pendulum clock system works, and appear to confirm that his thinking was sound. However, whether Harrison himself applied much in the way of complex mathematics in his work is doubtful. It seems more likely that, for the most part, his philosophy and practical designs were in fact based, to use his own words, "...on Reason and Experience".

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