

Saros. This period was anciently used for predicting the eclipses of the sun and moon; for those eclipses which happen during this period, are repeated again in the same order, and with nearly the same circumstances, after the expiration of one such period and the commencement of a second. The reason of this is, that at the end of such a cycle, the moon is in nearly the same position with respect to the sun, her nodes, and her apogee, as she was at first; and is only a few degrees distant from the same part of the heavens. But on the strength of this consideration, Halley conjectured that all the irregularities of the moon's motion, however complex they may be, would recur after such an interval; and that, therefore, if the requisite corrections were determined by observation for one such period, we might by means of them give accuracy to the Tables for all succeeding periods. This idea occurred to him before he was acquainted with Newton's views.⁸ After the lunar theory of the *Principia* had appeared, he could not help seeing that the idea was confirmed; for the inequalities of the moon's motion, which arise from the attraction of the sun, will depend on her positions with regard to the sun, the apogee, and the node; and therefore, however numerous, will recur when these positions recur.

Halley announced, in 1691,⁹ his intention of following this idea into practice; in a paper in which he corrected the text of three passages in Pliny, in which this period is mentioned, and from which it is sometimes called the Plinian period. In 1710, in the preface to a new edition to Street's *Caroline Tables*, he stated that he had already confirmed it to a considerable extent.¹⁰ And even after Newton's theory had been applied, he still resolved to use his cycle as a means of obtaining further accuracy. On succeeding to the Observatory at Greenwich in 1720, he was further delayed by finding that the instruments had belonged to Flamsteed, and were removed by his executors. "And this," he says,¹¹ "was the more grievous to me, on account of my advanced age, being then in my sixty-fourth year; which put me past all hopes of ever living to see a complete period of eighteen years' observation. But, thanks to God, he has been pleased hitherto (in 1731) to afford me sufficient health and strength to execute my office, in all its parts, with my own hands and eyes, without any assistance or interruption, during one whole period of the moon's

⁸ *Phil Trans.* 1731, p. 188.

¹⁰ *Ib.* 1731, p. 187.

⁹ *Ib.* p. 536.

¹¹ *Ib.* p. 198.