

Attempts have been made, from the time of the solution of the Problem of three bodies to the present, to give the greatest possible accuracy to the Tables of the Sun, by considering the effect of the various perturbations to which the earth is subject. Thus, in 1756, Euler calculated the effect of the attractions of the planets on the earth (the prize-question of the French Academy of Sciences), and Clairaut soon after. Lacaille, making use of these results, and of his own numerous observations, published Tables of the Sun. In 1786, Delambre²⁶ undertook to verify and improve these tables, by comparing them with 314 observations made by Maskelyne, at Greenwich, in 1775 and 1784, and in some of the intermediate years. He corrected most of the elements; but he could not remove the uncertainty which occurred respecting the amount of the inequality produced by the reaction of the moon. He admitted also, in pursuance of Clairaut's theory, a second term of this inequality depending on the moon's latitude; but irresolutely, and half disposed to reject it on the authority of the observations. Succeeding researches of mathematicians have shown, that this term is not admissible as a result of mechanical principles. Delambre's Tables, thus improved, were exact to seven or eight seconds;²⁷ which was thought, and truly, a very close coincidence for the time. But astronomers were far from resting content with this. In 1806, the French Board of Longitude published Delambre's improved Solar Tables; and in the *Connaissance des Temps* for 1816, Burckhardt gave the results of a comparison of Delambre's Tables with a great number of Maskelyne's observations;—far greater than the number on which they were founded.²⁸ It appeared that the epoch, the perigee, and the eccentricity, required sensible alterations, and that the mass of Venus ought to be reduced about one-ninth, and that of the Moon to be sensibly diminished. In 1827, Professor Airy²⁹ compared Delambre's tables with 2000 Greenwich observations, made with the new transit-instrument at Cambridge, and deduced from this comparison the correction of the elements. These in general agreed closely with Burckhardt's, excepting that a diminution of Mars appeared necessary. Some discordances, however, led Professor Airy to suspect the existence of an inequality which had escaped the sagacity of Laplace and Burckhardt. And, a few weeks after this suspicion had been expressed, the same mathematician announced to the Royal Society that he had de-

²⁶ Voiron, *Hist.* p. 815.

²⁸ Airy, *Report*, p. 150.

²⁷ Montucla, iv. 42.

²⁹ *Phil. Trans.* 1828.