

who was then Professor of Astronomy at Oxford, and afterwards Astronomer Royal at Greenwich. Molyneux and Bradley, in 1725, began a series of observations for the purpose of ascertaining, by observations near the zenith, the existence of an annual parallax of the fixed stars, which Hooke had hoped to detect, and Flamsteed thought he had discovered. Bradley⁷ soon found that the star observed by him had a minute apparent motion different from that which the annual parallax would produce. He thought of a nutation of the earth's axis as a mode of accounting for this; but found, by comparison of a star on the other side of the pole, that this explanation would not apply. Bradley and Molyneux then considered for a moment an annual alteration of figure in the earth's atmosphere, such as might affect the refractions, but this hypothesis was soon rejected.⁸ In 1727, Bradley resumed his observations, with a new instrument, at Wanstead, and obtained empirical rules for the changes of declination of different stars. At last, accident turned his thoughts to the direction in which he was to find the cause of the variations which he had discovered. Being in a boat on the Thames, he observed that the vane on the top of the mast gave a different apparent direction to the wind, as the boat sailed one way or the other. Here was an image of his case: the boat represented the earth moving in different directions at different seasons, and the wind represented the light of a star. He had now to trace the consequences of this idea; he found that it led to the empirical rules, which he had already discovered, and, in 1729, he gave his discovery to the Royal Society. His paper is a very happy narrative of his labors and his thoughts. His theory was so sound that no astronomer ever contested it; and his observations were so accurate, that the quantity which he assigned as the greatest amount of the change (one nineteenth of a degree) has hardly been corrected by more recent astronomers. It must be noticed, however, that he considered the effects in declination only; the effects in right ascension required a different mode of observation, and a consummate goodness in the machinery of clocks, which at that time was hardly attained.

Sect. 4.—Discovery of Nutation.

WHEN Bradley went to Greenwich as Astronomer Royal, he continued with perseverance observations of the same kind as those by which he had detected Aberration. The result of these was another

⁷ Rigaud's Bradley.

⁸ Rigaud, p. xxiii.