

The second reason for the retardation of a pendulum when transported to the equator—namely, the increased distance to the centre of the earth—was inferred by Newton from his theory that the earth was originally fluid, and as it solidified became flat at the poles from the effect of its rotation; a fact observable in all soft globular masses made to revolve rapidly.

It was thus that Newton arrived at the conclusion that the Earth is a spheroid, slightly flattened at the poles, and bulging at the equator.

This beautifully simple mathematical deduction was not universally accepted. On the contrary, it met with violent antagonists. The measurements of Cassini, who, in 1683, had extended his triangulations from Paris to the Pyrenees, had led astronomers to suppose that a degree was smaller in the north than in the south of France, and they had naturally concluded that the earth bulged at the poles and was flattened at the equator—that is to say, precisely the inverse of Newton's hypothesis. Riccioli in Italy, the three Cassinis in France, Fontenelle and his school, distinguished themselves among the adversaries of the Newtonian theory by their virulence. The war of words was not speedily terminated; the English philosophers espoused the cause of their illustrious countryman, the French maintained the elongation of the terrestrial spheroid; these attributed to it the form of an egg, those of an orange. It became necessary to solve the question, for it had degenerated into a veritable national quarrel.

In 1736 the French Government despatched a scientific expedition to Peru, and another to Lapland, for the purpose of measuring there an arc of the meridian. LA CONDAMINE and BOUGUER were at the head of the geometers who repaired to the equator. Maupertuis, the physician, who had warmly embraced the Newtonian system, and who even permitted its discovery to be attributed to himself, was chief of the commission despatched to the North Pole. Voltaire celebrated, with his usual sarcastic grace, in an epistle addressed to Count Algarotti, this celebrated scientific expedition:—\*

\* [Voltaire, *Œuvres Complètes*, tome x., Epîtres xli., p. 351.]