

was first observed at Pisa by Claudio Beriguardi ;* and five years later in France, at the suggestion of Pascal, by Perrier, the brother-in-law of the latter, when he ascended the Puy de Dôme, which is nearly one thousand feet higher than Vesuvius. The idea of employing barometers for measuring elevations now presented itself readily ; it may, perhaps, have been suggested to Pascal in a letter of Descartes.† It is not necessary to enter into any especial explanation of the influence exercised on the enlargement of physical geography and meteorology by the barometer when used as a hypsometrical instrument in determining the local relations of the Earth's surface, and as a meteorological instrument in ascertaining the influence of atmospheric currents. The theory of the atmospheric currents already referred to was established on a solid foundation before the close of the seventeenth century. Bacon had the merit, in 1664, in his celebrated work entitled *Historia Naturalis et Experimentalis de Ventis*,‡ of considering the direction of the winds in their dependence on thermometric and hydrometric relations ; but, unmathematically denying the correctness of the Copernican system, he conjectured the possibility " that our atmosphere may daily turn round the earth like the heavens, and thus occasion the tropical east wind."

Hooke's comprehensive genius here also diffused order and light.§ He recognized the influence of the rotation of the Earth, and the existence of the upper and lower currents of warm and cold air, which pass from the equator to the poles, and return from the poles to the equator. Galileo, in his last *Dialogo*, had indeed also regarded the trade winds as the consequence of the rotation of the Earth ; but he ascribed the detention of the particles of air within the tropics (when compared with the velocity of the Earth's rotation) to a vaporless purity of the air in the tropical regions.|| Hooke's more cor-

* Antinori, p. 29.

† *Ren. Cartesii Epistolæ* (Amstelod., 1682), Part iii., ep. 67.

‡ Bacon's *Works*, by Shaw, 1733, vol. iii., p. 441. (See *Cosmos*, vol i., p. 315.)

§ Hooke's *Posthumous Works*, p. 364. (Compare my *Relat. Historique*, t. i., p. 199.) Hooke, however, like Galileo, unhappily assumed a difference in the velocity of the rotation of the Earth and of the atmosphere. See *Posth. Works*, p. 88 and 363.

|| Although, according to Galileo's views, the detention of the particles of air is one of the causes of the trade winds, yet his hypothesis ought not to be confounded, as has recently been done, with that of Hooke and Hadley. Galileo, in the *Dialogo quarto* (*Opere*, t. iv., p. 311), makes Salviati say, " Dicevamo pur' ora che' l'aria, come corpo tenue, e fluido, e non saldamente congiunto alla terra, pareva che non