tions regarding the temperature of the Earth. As all natural phenomena—all the changes to which terrestrial matter is subject—are connected with modifications of heat, light, and electricity, whether at rest or moving in currents, and as likewise the phenomena of temperature, acting by the force of expansion, are most easily discernible by the sensuous perceptions, the invention and improvement of thermometers must necessarily, as I have already elsewhere observed, indicate a great epoch in the general progress of natural science. The range of the applicability of the thermometer, and the rational deductions to be arrived at from its indications, are as immeasurable as the sphere of those natural forces which exercise their dominion over the atmosphere, the solid portions of the earth, and the superimposed strata of the ocean—alike over inorganic substances, and the chemical and vital processes of organic matter.

The action of radiating heat was likewise investigated, a century before the important labors of Scheele, by the Florentine members of the Accademia del Cimento, by remarkable experiments with concave mirrors, against which non-luminous heated bodies, and masses of ice weighing 500 lbs., actually and *apparently* radiated.* Mariotte, at the close of the seventeenth century, entered into investigations regarding the relations of radiating heat in its passage through glass plates. It has seemed necessary to allude to these isolated experiments, since in more recent times the doctrine of the radiation of heat has thrown great light on the cooling of the ground, the formation of dew, and many general climatic modifications, and has led, moreover, through Melloni's admirable sagacity, to the contrasting diathermism of rock salt and alum.

To the investigations on the changes in the temperature of the atmosphere, depending on the geographical latitude, the seasons of the year, and the elevation of the spot, were soon added other inquiries into the variation of pressure and the quantity of vapor in the atmosphere, and the often-observed periodic results, known as the *law of rotation* of the winds. Galileo's correct views respecting the pressure of the atmosphere led Torricelli, a year after the death of his great teacher, to the construction of the barometer. It would appear that the fact that the column of mercury in the Torricellian column stood higher at the base of a tower or hill than at its summit,

* Antinori, *Saggi dell' Accad. del Cim.*, 1841, p. 114, and in the *Aggiunte* at the end of the book, p. lxxvi.