

plants and animals—are the effect of these two ever-divided forces, of which the one, heat, specially appertains to the celestial, and the other, cold, to the terrestrial sphere.

With yet more unbridled fancy, but with a profound spirit of inquiry, Giordano Bruno of Nola attempted to comprehend the whole universe, in three works,* entitled *De la causa Principio e Uno*; *Contemplationi circa lo Infinito, Universo e Mondi innumerabili*; and *De Minimo et Maximo*. In the natural philosophy of Telesio, a cotemporary of Copernicus, we recognize at all events the tendency to reduce the changes of matter to two of its fundamental forces, which, although “supposed to act from without,” yet resemble the fundamental forces of attraction and repulsion in the dynamic theory of nature of Boscovich and Kant. The cosmical views of the Philosopher of Nola are purely metaphysical, and do not seek the causes of sensuous phenomena in matter itself, but treat of “the infinity of space, filled with self-illuminated worlds, of the animated condition of those worlds, and of the relations of the highest intelligence—God—to the universe.”

Scantly endowed with mathematical knowledge, Giordano Bruno continued nevertheless to the period of his fearful martyrdom† an enthusiastic admirer of Copernicus, Tycho Brahe, and Kepler. He was cotemporary with Galileo, but did not live to see the invention of the telescope by Hans Lippershey and Zacharias Jansen, and did not therefore witness the discovery of the “lesser Jupiter world,” the phases of Venus, and the nebulæ. With bold confidence in what he terms the *lume interno, ragione naturale, altezza dell' intelletto* (force of intellect), he indulged in happy conjectures regarding the movement of the fixed stars, the planet-

* Compare the acute and learned commentary on the works of the Philosopher of Nola, in the treatise *Jordano Bruno* par Christian Barholmèss, tom. ii., 1847, p. 129, 149, and 201.

† He was burned at Rome on the 17th of February, 1600, pursuant to the sentence “ut quam clementissime et citra sanguinis effusionem puniretur.” Bruno was imprisoned six years in the *Piombi* at Venice, and two years in the Inquisition at Rome. When the sentence of death was announced to him, Bruno, calm and unmoved, gave utterance to the following noble expression: “Majori forsitan cum timore sententiam in me fertis quam ego accipiam.” When a fugitive from Italy in 1580, he taught at Geneva, Lyons, Toulouse, Paris, Oxford, Marburg, Wittenberg (which he calls the Athens of Germany), Prague, and Helmstedt, where, in 1589, he completed the scientific instruction of Duke Henry Julius of Brunswick-Wolfenbüttel.—Barholmèss, tom. i., p. 167-178. He also taught at Padua subsequently to 1592.