

The spots on the Sun, as I have already shown in the *Historical Epochs of the Physical Contemplation of the Universe*,* were not first observed by Galileo, Scheiner, or Harriot, but by John Fabricius of East Friesland, who also was the first to describe, in a printed work, the phenomenon he had seen. Both this discoverer and Galileo, as may be seen by his letter to the Principe Cesi (25th of May, 1612), were aware that the spots belonged to the body of the Sun itself; but ten or twenty years later, Jean Tarde, a canon of Sarlat, and a Belgian Jesuit, maintained almost simultaneously that the Sun's spots were the transits of small planets. The one named them *Sidera Borbonia*, the other *Sidera Austriaca*.† Scheiner was the first who employed blue and

have usually been ascribed to later observers." It is, indeed, not only possible, but even highly probable, that in districts where the Sun is obscured for many months, as on the coast of Peru, during the *garua*, even uncivilized nations may have seen Sun-spots with the naked eye; but no traveler has, as yet, afforded any evidence of such appearances having attracted attention, or having been incorporated among the religious myths of their system of Sun-worship. The mere observation of the rare phenomenon of a Sun-spot, when seen by the naked eye, in the low, or faintly obscured, white, red, or perhaps greenish disk of the Sun, would scarcely have led even experienced observers to conjecture the existence of several envelopes around the dark body of the Sun. Had Cardinal de Cusa known any thing of the spots of the Sun, he would assuredly not have failed to refer to these *maculæ Solis* in the many comparisons of physical and spiritual things in which he was too much inclined to indulge. We need only recall the excitement and bitter contention with which the discoveries of Joh. Fabricius and Galileo were received, soon after the invention of the telescope in the beginning of the seventeenth century. I have already referred (*Cosmos*, vol. ii., p. 311) to the obscurely expressed astronomical views of the cardinal, who died in 1464, and therefore nine years before the birth of Copernicus. The remarkable passage, "Jam nobis manifestum est Terram in veritate moveri;" "Now it is evident that the Earth really moves," occurs in lib. ii., cap. 12, *De docta Ignorantia*. According to Cusa, *motion* pervades every portion of the celestial regions; we do not even find a star that does not describe a circle. "Terra non potest esse fixa, sed movetur ut aliæ stellæ;" "The Earth can not be fixed, but moves like other stars." The Earth, however, does not revolve round the Sun, but the Earth and the Sun rotate "around the ever-changing pole of the universe." Cusa did not, therefore, hold the Copernican views, as has been so successfully shown by Dr. Clemens's discovery, in the hospital at Cues, of the fragmentary notice written in the cardinal's own hand in 1444. * *Cosmos*, vol. ii., p. 324-326.

† *Borbonia Sidera*, id est, planetæ qui Solis lumina circumvolitant motu proprio et regulari, falso hactenus ab helioscopis maculæ Solis nuncupati, ex novis observationibus Joannis Tarde, 1620. *Austriaca Sidera* heliocyclica astronomicis hypothesibus illigata opera Caroli Malapertii Belgæ Montensis e Societate Jesu, 1633. The latter work has at all events the merit of affording observations of a succession of spots