

possessions, at a distance of one hundred miles to the west of the Azores. If we consider further that Columbus, immediately after his return from his first voyage of discovery, proposed to go to Rome, in order, as he said, to "give the pope notice of all that he had discovered," and if the importance attached by the cotemporaries of Columbus to the discovery of the line of no variation be further borne in mind, it will be admitted that I was justified in advancing the historical proposition that the admiral, at the moment of his highest court favor, strove to have a "*physical line of demarkation converted into a political one.*"

The influence which the discovery of America and the oceanic enterprises connected with that event so rapidly exercised on the combined mass of physical and astronomical science, is rendered most strikingly manifest when we recall the earliest impressions of those who lived at this period, and the extended range of those scientific efforts, of which the more important are comprehended in the first half of the sixteenth century. Christopher Columbus has not only the merit of being the first to discover *a line without magnetic variation*, but also of having excited a taste for the study of terrestrial magnetism in Europe, by means of his observations on the progressive increase of western declination in receding from that line. The fact that almost every where the ends of a freely-moving magnetic needle do not point exactly to the geographical north and south poles, must have repeatedly been recognized, even with very imperfect instruments, in the Mediterranean, and at all places where, in the twelfth century, the declination amounted to more than eight or ten degrees. But it is not improbable that the Arabs or the Crusaders, who were brought in contact with the East between the years 1096 and 1270, might, while they spread the use of the Chinese and Indian mariner's compass, also have drawn attention to the northeast and northwest pointing of the magnetic needle in different regions of the earth as to a long-known phenomenon. We learn positively from the Chinese *Penthsaoyan*, which was written under the dynasty of Song,*

marks graven in rocks, or by the erection of towers. It is commanded, "que se haga alguna señal ó torre," that some signal or tower be erected wherever the dividing meridian, whether in the eastern or the western hemisphere, intersects an island or a continent in its course from pole to pole. In the continents, the *rayas* were to be marked at proper intervals by a series of such marks or towers, which would indeed have been no slight undertaking.

* It appears to be a remarkable fact, that the earliest classical writer