

glory of events which will survive in the memory of the latest ages.

Columbus, in sailing westward from the meridian of the Azores, through a wholly unexplored ocean, and applying the newly-improved astrolabe for the determination of the ship's place, sought Eastern Asia by a western course, not as a mere adventurer, but under the guidance of a systematic plan. He certainly had with him the sea chart which the Florentine physician and astronomer, Paolo Toscanelli, had sent him in 1477, and which, fifty-three years after his death, was still in the possession of Bartholomew de las Casas.* It would ap-

derived from facts, to the observation of which one man has led.—*Cardani Opera*, ed. Lugdun., 1663, t. ii., probl. p. 630 and 659, at nunc quibus te laudibus afferam Christophore Columbi, non familiæ tantum, non Genuensis urbis, non Italiæ Provinciæ, non Europæ, partis orbis solum, sed humani generis decus. I have been led to compare the "problems" of Cardanus with those of the latter Aristotelian school, because it appears to me remarkable, and characteristic of the sudden enlargement of geography at that epoch, that, amid the confusion and the feebleness of the physical explanations which prevail almost equally in both collections, the greater part of these problems relatè to comparative meteorology. I allude to the considerations on the warm insular climate of England contrasted with the winter at Milan; on the dependence of hail on electric explosions; on the cause and direction of oceanic currents; on the maxima of atmospheric heat and cold occurring after the summer and winter solstices; on the elevation of the region of snow under the tropics; on the temperature dependent on the radiation of heat from the sun and from all the heavenly bodies; on the greater intensity of light in the southern hemisphere, &c. "Cold is merely absence of heat. Light and heat are only different in name, and are in themselves inseparable." *Cardani Opp.*, t. i., *De Vita Propria*, p. 40; t. ii., Probl. 621, 630-632, 653, and 713; t. iii., *De Subtilitate*, p. 417.

* See my *Examen Crit.*, t. ii., p. 210-249. According to the manuscript, *Historia General de las Indias*, lib. i., cap. 12, "la carta de marear que Maestro Paulo Fisico (Toscanelli) envio á Colon" was in the hands of Bartholomé de las Casas when he wrote his work. Columbus's ship's journal, of which we possess an extract (*Navarrete*, t. i., p. 13), does not entirely agree with the relation which I find in a manuscript of Las Casas, for a communication of which I am indebted to M. Ternaux Compans. The ship's journal says, "Iba hablando el Almirante (martes 25 de Setiembre, 1492), con Martin Alonso Pinzon, capitán de la otra carabela Pinta, sobra una carta que le habia enviado tres dias hacia á la carabela, donde segun parece tenia pintadas el Almirante ciertas islas por aquella mar" In the manuscript of Las Casas (lib. i., cap. 12), we find, on the other hand, as follows: "La carta de marear que embió (Toscanelli al Almirante), yo que esta historia escribo la tengo en mi poder. Creo que todo su viage sobre esta carta fundó" (lib. i., cap. 38); "asi fué que el martes 25 de Setiembre, llegase Martin Alonso Pinzon con su caravela Pinta á hablar con Christobal Colon, sobre una carta de marear que Christobal Colon le via embiado"