

fraction of rays. Indian planetary tables. The disturbance in the moon's longitude recognized by Abul Wefa. Astronomical Congress of Toledo, to which Alfonso of Castille invited Rabbis and Arabs. Observatory at Meragha, of Ulugh Beig, the descendant of Timur, at Samarcand, and its influence. Measurement of a degree in the plain between Tadmor and Rakka. The Algebra of the Arabs has originated from two currents, Indian and Greek, which long flowed independently of one another. Mohammed Ben Musa, the Chowarezmier. Diophantus, first translated into Arabic at the close of the tenth century, by Abul Wefa Buzjani. By the same path which brought to the Arabs the knowledge of Indian Algebra, they likewise obtained in Persia and on the Euphrates the Indian numerals and the knowledge of the ingenious device of *Position*, or the employment of the value of position. They transmitted this custom to the revenue officers in Northern Africa, opposite to the coasts of Sicily. The probability that the Christians of the West were acquainted with Indian numerals earlier than the Arabs, and that they were acquainted, under the name of the system of the Abacus, with the employment of nine ciphers, according to their position-value. The value of position was known in the Suanpan, derived from the interior of Asia, as well as in the Tuscan Abacus. Would a permanent dominion of the Arabs, taking into account their almost exclusive predilection for the scientific (natural, descriptive, physical, and astronomical) results of Greek investigation, have been beneficial to a general and free mental cultivation, and to the creative power of art?—p. 219-228.

VI. *Period of the great Oceanic Discoveries.*—America and the Pacific. Events and extension of scientific knowledge which prepared the way for great geographical discoveries. As the acquaintance of the nations of Europe with the western portion of the globe constitutes the main object of this section, it is absolutely necessary to divide in an incontestable manner the first discovery of America in its northern and temperate zone by the Northmen, from the rediscovery of the same continent in its tropical regions. While the Califate of Bagdad flourished under the Abbassides, America was discovered and investigated to the  $41\frac{1}{2}^{\circ}$  north latitude by Leif, the son of Erik the Red. The Färoë Islands and Iceland, accidentally discovered by Naddod, must be regarded as intermediate stations, and as starting points for the expeditions to the Scandinavian portions of America. The eastern coasts of Greenland in Scoresby's Land (Svalbord), the eastern coasts of Baffin's Bay to  $72^{\circ} 55'$ , and the entrance of Lancaster Sound and Barrow's Straits, were all visited—Earlier (?) Irish discoveries. The White Men's Land between Virginia and Florida. Whether, previously to Naddod and Ingolf's colonization of Iceland, this island was inhabited by Irish (Westmen from American Great Ireland), or by Irish missionaries (*Papar*, the *Clerici* of Dicuil), driven by the Northmen from the Färoë Islands? The national treasures of the most ancient records of Northern Europe, endangered by disturbances at home, were transferred to Iceland, which three and a half centuries earlier enjoyed a free social Constitution, and were there preserved to future ages. We are acquainted with the commercial relations existing between Greenland and New Scotland (the American Markland) up to 1347; but as Greenland had lost its republican Constitution as early as 1261, and, as a crown fief of Norway, had been interdicted from holding intercourse with strangers, and therefore also with Iceland, it is not surprising that Columbus, when he visited Iceland in 1477, should have obtained no tidings of the new conti-