

ment situated to the west. Commercial relations existed, however, as late as 1484, between the Norwegian port of Bergen and Greenland—p. 228-238.

Widely different, in a cosmical point of view, from the isolated and barren event of the first discovery of the new continent by the Northmen, was its rediscovery in its tropical regions by Christopher Columbus, although that navigator, seeking a shorter route to Eastern Asia, had not the object of discovering a new continent, and, like Amerigo Vespucci, believed to the time of his death that he had simply reached the eastern shores of Asia. The influence exercised by the nautical discoveries of the close of the fifteenth and the beginning of the sixteenth century on the rich abundance of the ideal world, can not be thoroughly understood until we have thrown a glance on the ages which separate Columbus from the blooming period of cultivation under the Arabs. That which gave to the age of Columbus the peculiar character of an uninterrupted and successful striving for an extended knowledge of the earth, was the appearance of a small number of daring minds (Albertus Magnus, Roger Bacon, Duns Scotus, and William of Occam), who incited to independent thought and to the investigation of separate natural phenomena; the revived acquaintance with the works of Greek literature; the invention of the art of printing; the missionary embassies to the Mogul princes, and the mercantile travels to Eastern Asia and South India (Marco Polo, Mandeville, and Nicolo de' Conti); the improvement of navigation; and the use of the mariner's compass or the knowledge of the north and south pointing of the magnetic needle, which we owe to the Chinese through the Arabs—p. 238-254. Early expeditions of the Catalans to the western shores of Tropical Africa; discovery of the Azores; general atlas of Picigano, of 1367. Relations of Columbus to Toscanelli and Martin Alonso Pinzon. The more recently known chart of Juan de la Cosa. The South Pacific and its islands—p. 255-273. Discovery of the magnetic line of no variation in the Atlantic Ocean. Inflection observed in the isothermal lines a hundred nautical miles to the west of the Azores. A *physical* line of demarkation is converted into a *political* one; the line of demarkation of Pope Alexander VI., of the 4th of May, 1493. Knowledge of the distribution of heat; the line of perpetual snow is recognized as a function of geographical latitude. Movement of the waters in the Atlantic Ocean. Great beds of sea-weed—p. 273-285. Extended view into the world of space; an acquaintance with the stars of the southern sky; more a sensuous than a scientific knowledge. Improvement in the method of determining the ship's place; the political requirement for establishing the position of the papal line of demarkation increased the endeavor to discover practical methods for determining longitude. The discovery and first colonization of America, and the voyage to the East Indies round the Cape of Good Hope, coincide with the highest perfection of art, and with the attainment of intellectual freedom by means of religious reform, the forerunner of great political convulsions. The daring enterprise of the Genoese seaman is the first link in the immeasurable chain of mysterious events. Accident, and not the deceit or intrigues of Amerigo Vespucci, deprived the Continent of America of the name of Columbus. Influence of the New World on political institutions, and on the ideas and inclinations of the people of the Old Continent—p. 285-301.

VII. *Period of great Discoveries in the Regions of Space.*—The application of the telescope: a more correct view of the structure of the