

attendant, pestilence, walked openly abroad. As if by some mysterious sympathy with the terrors of the time, the Earth refused her fruits, and the fields their pasture, blight fell on the corn-plains, and on the vineyards of the hills: the forces of nature seemed failing: no growth came to maturity, a gray shadow as of old age and dissolution, enveloped alike the open country and the habitations of man. Through out the fairest provinces of Europe, the dead lay in heaps, with none to bury them. Then the invaders came. As eagles, that scented the mortality from a far, came the Scandinavians from the North, the Hungarians from the East, and the Saracens from the West, devastating Europe with a triple scourge. But the fated year, the year one thousand, came and went; and the world still lived on. The frame of nature seemed yet unshaken; the seasons alternated as of old; the sun still shone, and the dews of heaven descended. In that vast and wide spread feeling of relief which followed, Humanity seemed to re-assert its powers and privileges with renewed and redoubled energy. Towns were incorporated: industrial interests were protected, banks were founded: markets and staples were created by charter: the mediæval communes arose. The laws were more effectively administered: justice returned to the earth, which is seemed so long to have forsaken, the highways and lines of travel were protected, and, as a necessary consequence, trade and commerce revived, nay became extended and enlarged, with the progress of the crusades and an increasing knowledge of the Asiatic peoples and products. The Italian states, the powerful cities of Genoa, Pisa and Venice, became the carriers of Europe and of the soldiers of the cross. Their navies appeared in every sea; and their discoveries far transcended the narrow limits of preceding ages. The southern hemisphere became known. The opening stanzas of the *Purgatorio* of Dante bear testimony to the fact that the constellation of the Cross, which revolves in close proximity to the south pole, was, in the thirteenth century, as it has ever been since, an object of wonder and admiration to antarctic voyagers.

Among the maps published by Richard Gough in his *British Topography*, London, 1768 and 1780, are given some curious specimens of English map making in the 13th and 14th centuries. Two of these are itinerary maps, one from Dover to London, the other of the four main roads through Britain, but the most remarkable, and perhaps the earliest, is the facsimile of a map of the British Islands drawn on vellum, and of an accuracy hitherto unknown. Lelewel terms it "*le premier beau monument de la carte topographique de situation*," that is, as distinguished from the *cartes routières* or *itinéraires*, and the *portulans* or marine charts of harbours.

The commercial cities took the lead in chartography. The Doge Francesco Dandolo suspended the finest charts in the ducal hall. There were innumerable copyists, and the primato in drawing must be accorded to the Venetians. An atlas of sea maps by Pietro Visconte of Genoa is preserved in the Austrian Library at Vienna signed and dated 1318.

The Genoese map of Pizzigani was also widely known. The medicæan portulan of 1351, from Florence, is composed of eight double maps on parchment. It is to be noted that in all places, at Venice, Genoa, Majorca, Lower Italy, and Spain, the marine maps had thrown off the antiquated and effete nomenclature taken from Holy Writ. The *Rose-des-vents* appears on them all. The bearings and orientation are defective, being based on the magnetic compass. The chart of Pizzigani shews, on the borders of the Western Ocean, near Finisterre, the figure of a woman turned towards Europe and forbidding future progress. But the Catalan, fearless of danger, the child of adventure and paladin of the open seas, has his *rose-des-vents* far out in the broad Atlantic. He fears nothing, so long as his compass is with him.

There is one thing that appears remarkable on many of these maps: northern Africa is represented as studded with names, and covered with lakes and water-courses, where our modern maps shew almost a blank vacuity. Sanutos map of 1320 from the Paris codex, the *Tabula Catalana* of 1375. Pierre D'ailly's *mappa Mundi*, and the chart of Mauro Camaldolese 1457, all these shew the Sahara traversed by streams and highways, filled with lakes, and dotted with hamlets and villages. When Tunis was a Roman province, the country supported a population of twenty millions. The number of inhabitants does not now exceed a million and a half, and it is doubtful whether a much larger population could find subsistence there at the present day. Lieut. Col. R. S. Playfair, the British Consul General in Algeria, attributes this changed condition to the extensive destruction of forests which has taken place since ancient times. Vast plains, now covered with arid sand, were formerly clothed with timber. Has this gradual desiccation been general throughout Northern Africa? And may we assume from this that the district of the Sahara was formerly less sandy than at present? It certainly was more travelled, and doubtless better known. In the old times of Carthage the commerce of the city with the interior was very great. There were long lines of caravan travel covering the Sahara as with a net work, and from Soudan she received elephants, slaves, ivory and gold. The salt lakes of the interior were an inexhaustible source of traffic, Soudan being destitute of salt. The substitution of marine for inland commerce seems insufficient to account for the change. Perhaps, the sands of the desert, advancing slowly through many ages, have gradually obliterated the marks and footprints of civilisation, and have in this way, reduced the vast districts of the Sahara to the solitude and silence of an unbroken desert.

The close of the thirteenth century was made famous by the travels of Marco Polo the Venetian, who may find mention here, although no map maker, from the immense influence his journeyings had on map making and on geographical discovery. Marco was incomparably the greatest traveller of the middle ages, and has been called the Herodotus of those times. His life is a romance. It was his fate,