

clothed in perpetual verdure, and flowing with milk and honey; while the corresponding region of Labrador is bound in the icy chains of almost perennial frost. The Gulf stream, that great oceanic current, is the cause of the warmth of one region, and the great northern current, together with the diurnal revolution of the earth, of the cold of the other. You perceive that Cape St. Roque, on the Brazil coast, as I mark it for you, approaches so near to the African continent as to form a great basin widening out to the north of the Equator. Now, the almost vertical sun heats to an enormous degree this immense basin or cauldron of water in the Atlantic. All water heated increases in bulk, as every housewife knows who places a kettle too full on the fire; the water when heated begins to flow; now the very same thing happens to the enormous cauldron of hot water between Africa and Brazil, the water so highly heated flows over towards the north; it enters into the Gulf of Mexico, heated to the highest pitch, seeks its exit through the narrow passages round Cuba and through the West India Islands, and following the direction it gets from the set of the coast, and the diurnal motion of the earth, it flows on, widening out like a fan every mile it travels, till it reaches the shores of Europe, envelopes Ireland in its tepid embraces, bathes the coast of France, passes round England and washes the shores of Belgium, Holland, Germany, even in Norway prevents harbours from freezing, and enables the Laplander to ripen barley under the Arctic Circle. But why does it not go directly north and bathe the shores of Newfoundland?—One great cause is the diurnal movement of the earth. If it were possible to fire an Armstrong gun, for example, from the Equator to the Pole at the source of the Gulf stream, the bullet would not, as we imagine, go straight, it would tend every instant to the right, describing a curve, and strike somewhere about the coast of Ireland. It is a curious fact that a railway train going at high velocity due north and south, always exhibit a strange tendency to fly off *at the right hand*. I beg you to remember this, for here is the secret of the climate in a great measure. The Gulf stream going north, curves off to the right hand, strikes the shores of Europe, rushes on to the great Polar basin, the region of perpetual frost, cooled there, the great basin overflows, and sends down the gelid or Arctic current to fill up the place in the Equatorial seas left vacant by the overflow of the Gulf stream, which I may remark, distributes daily as much heat in its course as would melt thousands of tons of iron if concentrated. The cold current then rushes down by Baffin's and Hudson's Bays, and as

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