

This remarkable diversion of the isothermal lines from their normal direction is admittedly caused by ocean currents affecting the temperature of the surface while conveying the warm tropical water towards the polar regions, whence there is a constant counterflow of cold water beneath to supply its place.

We thus arrive at the well-known result that the temperature of the sea bathing the north-eastern shores of the North Atlantic is raised greatly above its normal point by currents involving an interchange of tropical and polar water; and that the lands bordering on the North Atlantic participate in this amelioration of climate by the heat imparted by the water to their prevailing winds.

This phenomenon is not confined to the North Atlantic, although from its peculiar configuration and relation to the land that ocean presents the most marked example. A corresponding series of loops, not so well defined, passes southwards along the east coast of South America, and a very marked series occupies the north-eastern angle of the Pacific off the Aleutian Islands and the coast of California.

Two principal views have been held as to the causes of the currents in the North Atlantic. One of these, which appears to have been first advanced in a definite form by Captain Maury, and which has received some vague support from Professor Buff, is that the great currents and counter-currents of warm and cold water are due to a circulation in the watery shell of the globe, comparable to the circulation of the atmosphere,—that is to say, caused by tropical heat and evaporation, and arctic cold.