

Antarctic Sea. No geological facts are indeed at first sight more strange and inexplicable than the changes of climate in the Atlantic area, even in comparatively modern periods. We know that in the early Tertiary temperate conditions reigned as far north as the middle of Greenland, and that in the Pleistocene the Arctic cold advanced until an almost perennial winter prevailed half way to the equator. It is no wonder that nearly every cause available in the heavens and the earth has been invoked to account for these astounding facts. I shall, I trust, be excused if, neglecting most of these theoretical views, I venture to invite attention, in connection with this question, chiefly to the old Lyellian doctrine of the modification of climate by geographical changes. Let us, at least, consider how much these are able to account for.

The ocean is a great equalizer of extremes of temperature. It does this by its great capacity for heat, and by its cooling and heating power when passing from the solid into the liquid and gaseous states, and the reverse. It also acts by its mobility, its currents serving to convey heat to great distances, or to cool the air by the movement of cold icy waters. The land, on the other hand, cools or warms rapidly, and can transmit its influence to a distance only by the winds, and the influence so transmitted is rather in the nature of a disturbing than of an equalizing cause. It follows that any change in the distribution of land and water must affect climate, more especially if it changes the character or course of the ocean currents.

Turning to the Atlantic, in this connection we perceive that its present condition is peculiar and exceptional. On the one hand it is widely open to the Arctic Sea and the influence of its cold currents, and on the other it is supplied with a heating apparatus of enormous power to give a special elevation of temperature, more particularly to its eastern coasts. The great equatorial current running across from Africa is on its northern side embayed in the Gulf of Mexico, as in a great